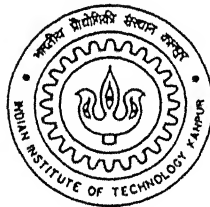


CRITICAL ISSUES RELATED TO HUMAN RESOURCE PLANNING AND MANAGEMENT IN ARMY, WITH SPECIAL REFERENCE TO THE CORPS OF EME

By

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A Thesis Submitted

in Partial Fulfillment of the Requirements

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Major Pranvendra Kumar

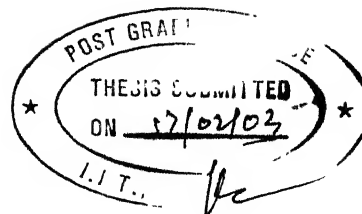
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DEPARTMENT OF INDUSTRIAL MANAGEMENT ENGINEERING

INDIAN INSTITUTE OF TECHNOLOGY KANPUR

February 2003

CERTIFICATE



It is certified that the work contained in the thesis entitled “CRITICAL ISSUES RELATED TO HUMAN ESOURCE PLANNING AND MANAGEMENT IN ARMY WITH SPECIAL REFERENCE TO THE CORPS OF EME” by Major Pranvendra Kumar has been carried out under my supervision and this work has not been submitted elsewhere for a degree.

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Pranvendra Kumar

ABSTRACT

The past few decades have witnessed a sea change in the socio-economic and technological environment in which the Corps of EME of the Indian Army has to function. The study focuses on the important IIRM issues that will have far reaching consequences for the efficiency of the Corps of EME in particular and the Indian Army in general. It aims at reviewing the present recruitment and trade allocation system in technology driven Corps like EME, analyzing the technical training requirements to maintain complex equipment being inducted in the army, and identifying the 'knowledge - skill' gap to face the challenges of the future. The increased pressure on the Corps to downsize necessitates a review of the manpower planning processes in the Corps of EME by reviewing its existing trade structure and exploring the possibilities of merging trades with similar job content and deleting some of the trades that have become redundant. The manpower planning processes in the Corps of EME were studied with a view to identify the gaps in the existing system. A manpower planning model based on the Markov's stochastic processes has been suggested to overcome the problems of forecasting of wastages and demand of vacancies for fresh recruitment each year.

The issues related to IIRM in the Corps have been studied with the help of survey (structured interview schedule), informal interviews with the soldiers, the officers and case studies. The socio-psychological issues covered in the study examine factors like levels of job satisfaction, job related stress, social comparison with civilian counterparts and their colleagues from other

trades, and issues related to retention. The contribution of demographics of the respondents to these factors has also been analyzed using statistical methods.

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GLOSSARY OF MILITARY TERMS USED

Avn Ftr	Aviation Fitter
Armr	Armorer
AFV	Armored Fighting Vehicle
AD	Air Defence
BRO	Branch Recruiting Office
Cfn	Craftsman
Clk	Clerk
Cpr & Jnr	Carpenter & Joiner
Dvr (MT)	Driver (Military Transport)
Dvr(Spl Veh)	Driver (Specialist Vehicles)
Dft man	Draughtsman
EME	Electronics and Mechanical Engineering
EE Mech	Engineering Equipment Mechanic
Eqpt	Equipment
Elect	Electrician
Ftr	Fitter
Ftr(FD)	Fitter (Field guns)
GD	General Duties
GCE	Gun Control Equipment
Hav	Havildar
Inst Mech	Instrument Mechanic
JCOs	Junior Commissioned Officer
Limb Maker (H)	Limb Maker (Hand)
Limb Maker (L)	Limb Maker (Leg)
MCEME	College of Electronics and Mechanical Engineering
NCOs	Non Commissioned Officer
Nk	Naik
Nb Sub	Naib Subedar
OEM	Original Equipment Manufacturers
Rec Mech	Recovery Mechanic
Refrig Mech	Refrigeration Mechanic
SK Tech	Store Keeper Technical
Sub	Subedar
Sub Maj	Subedar Major
TR	Tire and Tube repairer
TCM (R)	Telecommunication Mechanic (Radio)
TCM(L)	Telecommunication Mechanic (Line)
Tech	Technical
VM (MV)	Vehicle Mechanic (Military Vehicle)
ZRO	Zonal Recruiting Office

CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

1.1 Introduction

1.1.1 The Corps of EME

The Corps of EME is an important supporting arm of the Indian Army (IA). It has an important role of providing engineering support through a wide range of technical equipments in the Indian Army. It is responsible for maintaining a wide variety of equipments ranging from all types of weapon systems (from rifles to the fifth generation missile systems), combat vehicles (from the vintage Jeep to the state of art T-90 tanks and the recently acquired remotely piloted vehicles i.e. RPVs), and a wide range of telecommunication equipment used by the Indian Army. The Corps performs this important task by ensuring the operational fitness of all the equipment at all times. The Corps is one of the largest in terms of manpower. Its approximate strength of 91,000 personnel constitutes 10% of the overall strength of the Indian Army. This excludes the various civilians employed in various static units of EME like the base workshops which undertake major equipment overhauls. Planning and managing such a huge human resource becomes an important command function of all unit commanders at various levels in the Corps of EME.

1.1.2 Importance of HRM

The efficiency of an organization like the army depends upon optimum utilization of all its available resources. Out of all the resources available to an organization, the human resource is the most important and also the most difficult to manage. The human resource, particularly in the army is very heterogeneous in nature, thus making human resource management is an all the more complex issue. Human resource consists of a group of individuals having a unique personality, a unique affective response to diverse situations, values, aspirations and thought process. Human beings behave in widely differing and complicated ways to different stimuli. Their reaction to promises, praise, and criticism vary across time and space. Collective steering of a set of all such personalities to achieve the common organization goals can be clubbed under generic head Human Resource Management.

The productivity and usefulness of all the other resources, i.e. machines, material and money is intrinsically linked and found to be dependent on its human resource which may take years of efforts to develop it to optimum level. It is thus not surprising that organizations world over, including the defense, are focusing on developing and harnessing this vast potential reservoir of competencies, skills, knowledge, attitudes and values of human beings to hone them to improve the efficiency of the organization. Organizations need competencies in the form of knowledge, attitude, values and skills to remain competitive, and to achieve their objectives. Without continuous development of the competencies of people, an organization is not likely to achieve its goals. Competent and motivated employees are essential for growth and excellence. Even to maintain and stay at the same level, i.e. to

survive, the competencies of the employees need to be sharpened and developed, as organizations operate in ever changing environment. This calls for strategic human resource management to satisfy adaptive and goal setting needs of organizations working in this changing environment.

The HRM mechanisms in an organization are designed on the basis of the following assumptions:

- (a) Human resource is the most important asset in an organization.
- (b) Unlike other resources, human resource can be developed and improved to an unlimited extent.
- (c) A healthy climate characterized by the values of openness, enthusiasm, trust and mutual understanding is essential for developing the human resource.
- (d) HRM can be planned and monitored in ways that are beneficial both to individuals and organizations.
- (e) Employees are likely to feel more committed to their work and the organization if the organization perpetuates a feeling of belongingness and caters to their needs, by having an appropriate system and management style.

This study identifies some aspects of Human Resource Management that require serious attention in the context to the Corps of EME. The study also suggests some policy measures to improve the working of the Corps. The suggestions are based on the limited data made available to the author. Therefore they are tentative. Some of them may require modification when all relevant data are available for in-side study.

1.2 Statement of the Problem

The rapid growth of technology in the present Information Technology (IT) driven environment, would bring in the use of cutting edge technology in the equipment and weapon systems of the armed forces. Providing an effective engineering support to the equipment and weapon system is the primary role of the Corps of EME. The challenges of emerging technology would make it imperative for the Corps of EME to review its existing philosophy on issues related to providing engineering support. The multidisciplinary nature of technology will demand the Corps to review the quality of intake of recruits, its training requirements and multiskilling of its tradesmen by reviewing its trade structure, whereby a limited number of tradesmen can handle a complex system. Presently, for example there are eight tradesmen involved in repair of an Armored Fighting Vehicle (tank). The new idea is to create a situation in which two tradesmen will be enough to deliver the desired results. The multiskilling of the tradesmen would also become a necessity as the military force structure of the Indian Army is expected to change in the years to come in the form of downsizing its force levels.

The Corps would no longer have the luxury of having as many as 61 trade categories as it has now. Reduction in manpower will have to be planned in a phased manner without compromising on the technical efficiency of the Corps of EME. Career management of trained manpower and their retention in an organization like army with a pyramidal structure leading to reduced promotion opportunities will have to be planned. A majority of the tradesmen in the Corps retire below 40 years of age. The rationale behind this

is to maintain a youthful profile of the Corps. This is the time when their social responsibilities are highest. There would be a need to explore the possibilities of providing a second career option for such people.

The proliferation of sophisticated, higher-end-technological equipment and weapon systems, changing norms of the society, coupled with stringent enforcement of downsizing the force levels in army, would be the order of the days to come. The breakdown of joint family system, improved employment opportunities due to industrialization, increased emphasis on materialistic norms and better educational standards are some of the important parameters that need to be analyzed. Further there is a need to review the current policies and practices regarding recruitment, training, role efficacy and retirement. In this context this study aims at making an effort to review and analyze the implication of these factors on the prevalent human resource management and manpower planning practices in the Corps of EME and to suggest remedial measures to overcome the problems.

1.3 Objectives and scope of the study

The purpose of this study is to analyze aspects of manpower planning and human resource management. The scope of the study has been restricted to the personnel below the rank of the officers (NCOs and JCOs) in the Corps of EME of the Indian Army. The important issues covered in the study are as follows:

A. Issues related to manpower planning process:

- (a) To analyze the present recruitment, trade allotment and technical training processes, so as to meet the challenges of the future.

- (b) To study the necessity of reviewing the existing trade structure of the Corps of EME.
- (c) To study the existing system of forecasting of wastages in terms of manpower and demand of vacancies for fresh recruitment each year with a view to identify the problems and suggest remedial measures.
- (d) To explore the possibilities of offering a second career option for the soldiers who are forced to retire even before they are 40 years of age, due to organizational constraint of maintaining a youthful profile of the armed forces.

B. Socio-psychological issues:

- (a) To collect opinion and views of the personnel enrolled in the Corps of EME on the following issues:
 - i. Preferred attributes related to army life.
 - ii. Level of job satisfaction.
 - iii. The level of job related stress and identifying the factors contributing to stress.
 - iv. Retention in the Corps and reasons for individuals opting for premature retirement.
 - v. The level of satisfaction of the tradesmen in comparison to their counterparts in civil organization.
- (b) To analyze the impact of demographic characteristics of individuals on the above mentioned socio-psychological issues.
- (c) To study the impact of changing socio-economic environment on the HRM practices in the Corps of EME.

- (d) To analyze the existing 'knowledge-skill' gap in the Corps and suggest measures to bridge this gap.

1.4 Rationale of the study

Man management has held a position of considerable importance in the army. The headquarters often ask for feedback and suggestions from the units and formations at the lower levels from time to time. It is seen that inputs to such feedback are often given by the unit/formation commanders. Due to paucity of time and other administrative constraints the troops at the functional level about whom such feedback is obtained, are generally not consulted. Unlike in a civil organization, in army the unit commanders are responsible for all decisions pertaining to subordinates, as army does not have a specific department for looking after the training or welfare as the civil organizations often have. Thus the aspects of man management become all the more important and relevant for all units where all the sub unit commanders are managers at some level or the other.

1.4.1 Need for change in management style

As the society is changing, there is a need felt in the army to rid itself from the archaic work ethos, which used to be characterized by an '*autocratic style*' of man management; a reminiscent and hangover of our colonial past. Greater involvement of freedom of action of subordinates especially in technical Corps like EME has to be accepted, as propounded by the '*directive style*' of management. This concept is particularly applicable to the Corps of EME. The EME tradesmen shoulder the responsibility to boost the morale of the fighting arms by increasing their confidence on the equipment (through the operational fitness of their equipment). Technical solutions demand creativity

and ingenuity which can only come by giving freedom of execution to subordinates. The importance of man in a '*man-machine*' interface continues to be extraordinarily high.

1.4.2 Downsizing of the army and its implications for the Corps of EME

The issue of human resource planning has become an important cause of concern for the officers of the Corps of EME, ever since the Indian Army has embarked upon a plan to prune strength of its forces. This drive has been undertaken basically to overcome the financial resource crunch being faced presently by the Indian Army (IA): the army wishes to utilize its financial resources for modernizing the army rather than sustaining a large force. The cut in the manpower cannot be from the '*fighting arms*' like Infantry, Armored and the Artillery Corps which form the *teeth* of the IA and are already deficient in terms of manpower. Thus the brunt of having a '*leaner and a meaner force*' has to be borne by the supporting arms like EME, Ordnance and the Supply Corps, which look after the logistics part and constitute the so called *tail* of the Indian Army. This drive to improve the *teeth-to-tail* ratio by pruning the force level imply that the supporting arms will have to shed a major portion of its manpower compared to the fighting arms. The Corps of EME being the most manpower intensive amongst all the other supporting arms will have to shed a major portion of its manpower. Secondly, and more importantly, the cost saving that would result by downsizing the Corps of EME would be utilized for procurement of high-tech equipment, although this would bring in an additional load of maintaining the new generation equipment with a reduced level of manpower.

The Corps of EME will have to shed approximately 15,500 personnel from its present strength of approximately 91,000. This reduction in manpower cannot be done all of a sudden due to inherent rigidity of the system. Once recruited, a soldier cannot be asked to quit especially when he is appointed against regular vacancy. This would imply that the downsizing has to be done in a phased manner.

The reduction in the manpower would also lead to the problem of reduction in promotion opportunities in the Corps of EME. With the reduced avenues of promotions, the requests for premature retirements (PMR) would go up.

The Corps of EME will have to find a solution from within its own resources to overcome these conflicting requirements of reduced manpower and increase of the load of the equipment it would have to maintain. A review of its existing human resource management and planning practices thus becomes all the more important.

1.4.3 Problems with the present manpower planning system

The present manpower planning process, in terms of forecasting the requirement of vacancies for fresh recruitment each year and method of calculation of the wastages accruing due to various reasons, were studied in details at the EME Records office at Secunderabad. It is felt that at the moment complex decisions are handled by intuition, past experiences and certain rules of thumb. This leads to large errors in forecasting of the requirements of fresh recruitment vacancies and the wastages arising due to various reasons. There is a need for adopting a more scientific approach, for the manpower planning processes in the Corps.

1.5 Manpower planning processes

Long range planning is a must for any complex organization. As organizations grow in size and diversity and attempt to cope with the challenges of changing environment, they must make increasingly sophisticated, long range evaluation of investment in products, facilities, and personnel.

Among the long range planning processes, one area of critical importance is *manpower planning*. Manpower planning includes a specification of the kinds and numbers of personnel an organization will need to attain its objectives and sustain its growth or service objectives. Such planning produces a forecast based on existing personnel inventories of how well the organization is presently positioned to meet its projected needs and aspirations. It also produces a comparison of manpower needs with forecasted availability, and the formulation of plans for recruiting, assigning, and developing personnel.

1.5.1 Review of available forecasting methods.

The currently available techniques of manpower planning can be broadly classified into *judgmental and analytical methods*. The final objective of all the methods available is to generate quantitative information for use in managerial decision making. *Judgmental methods* are human resource forecasting methods are the most widely used in industry (Greer and Jackson, 1989; Nkomo, 1986). In them, an "expert" or set of experts generate estimates of personnel availabilities and needs. The bases for these estimates range from the intuition and experience obtained in regular administrative activities to well developed data bases. Frequently, they require iterative processes to reach

consensus. They can be implemented as "bottom up" approaches or may be generated by senior management. They may incorporate a wide range of variables including non-quantifiable factors. In some cases, they are designed to recognize the discontinuities, complexities and uncertainties that limit the quantitative methods.

Analytical methods generally require significant amounts of reliable data on past experience. The analysis of these data is made utilizing statistical, mathematical and computer simulation approaches. These methods are often not very tolerant of ambiguities and discontinuities in the environment.

1.5.2 Preliminary information requirements

Availability of information is a precondition for the use of either *judgmental or analytic* methods for forecasting or planning supply, demand and employment of human resources. Two sets of information are required. The first includes personnel data bases identified as human resource information systems, skills inventories, etc. They contain a wide range of information about their employees including skills, interests, experience, professional qualifications, performance levels, prospective next assignments, etc. The second includes information on the hierarchical structure of a firm, usually presented in its organizational chart. These two types of information can be used for a variety of analyses dealing with capabilities that are available to an organization, that are needed by it now and in the near future and the staffing problems that could emerge. They can suggest potential issues for future staffing and can provide information for use in predicting attrition and mobility (Cascio, 1987).

1.5.3 Judgmental Methods

Replacement charts can be considered systematized examples of skill inventories. They provide a picture of key positions in organizations. For each key position on the chart, they include information on the incumbent and the names and data of prospective replacements. This requires managerial assessments of employees' readiness, ability and willingness to fill key jobs when needed. Forecasters use replacement charts to assess the availability of personnel and to predict movement between jobs.

Managerial estimates of the number of employees needed to meet the business objectives can be considered the simplest judgmental method to assess a firm's demand of human resources. They are based on the manager's experience and expectations or some approved basis for equating work and personnel.

Staffing tables are matrices whose first column lists the job categories to be assessed and the number of persons currently in each position. Then, in succeeding columns (which represent forecast time horizons in months or years) the expected number of persons required in those positions is noted. Factors such as business growth, new services, system changes, turnover, retirements, etc. are considered by management to estimate requirements. The number of present, additional and total employees by job category and the reason for each addition is given (Gatewood, 1983).

Delphi method is a highly structured approach with many applications. In the problem at hand, a facilitating agent recruits an expert panel (e.g., company managers, industry analysts, university professors) and request demand estimates from each one of them. When this first round is completed,

each panel member has provided a forecast estimate and the reasons supporting it. If there is no reasonable consensus, the experts are asked to revise their reasoning and their estimates. With this, they learn from one another and, over a few iterations, there tends to be a convergence toward a commonly agreed upon forecast (Milkovich, 1972).

Ratio analysis is based on the assumption that there are constant ratios between personnel and requirements such as between legal secretaries and number of attorneys, mechanics and number of machines, employees and total production, etc. By using operating or production goals, the required number of employees can be determined (Frantzerb, 1981).

Renewal analysis aims at evaluating the chain reaction through the hierarchical structure of a firm of vacancies due to turnover, movements out of a job category and organizational growth. When one person is pulled in to fill a vacancy, it creates a new vacancy that has to be filled with personnel from lower hierarchical levels or the external environment. In the more sophisticated models, the vacancies in the system are determined by what can be called tables of the life expectation of the personnel in the different jobs that record the probabilities that employees will remain 1, 2, etc. years in a job. The proportions in which vacancies are transferred from one level to the others and to the external environment, and the job survival tables are evaluated using information from the organizations past experience (Bartholomew, 1979).

1.5.4 Analytical methods

Andrew Young and Gwem Almond (1987) were the pioneers to use analytical models for predicting the number and distribution of staff among

various grades in future years for an institution which had expanded rapidly since the end of World War II. They showed that it is unlikely that a constant scenario in an organization will persist for several decades. Hence analytical analysis can be done to give advance notice of the necessity for changing staffing policies (Vajda, 1979).

Network Flow model casts the problem in terms of nodes which represent individual specialties in specific time periods, and links of which represent all potential training and retraining flows. By using one node for each specialty in each time period, a dynamic flow is simulated by static network. The solution yields the set of flows over non-training, training and retraining links which maximizes the aggregate value of the network, the set of flows which results in the best match of expected available manpower to projected requirements.

Models based on *Markov stochastic processes* are the most popularly used analytic instrument to forecast availability of human resources. For this, a firm is subdivided into hierarchical ladders. Next, from historical information, transition matrices are developed. They include empirical probabilities that over a specific time interval (e.g., one year), employees in a particular position will remain in it or will move out. When information on new entrants and number of persons in each job, and the transition matrix are known, forecasts can be obtained of the number of persons in each position for one or more relevant time periods (Bartholomew, 1979; Zanakis 1980).

1.6 Modeling human resource flow based on Markov's processes

A human resource system may be modeled as a set of interconnected *stocks* with *flows* between them, to facilitate - understanding of the changes in the states of this system as shown in Fig1.1.

When one sets out to model human resource system by using formal approaches of Markov chain type, one begins by identifying which *stocks* and *flows* are predetermined (not subject to the decision maker's control), and which are not.

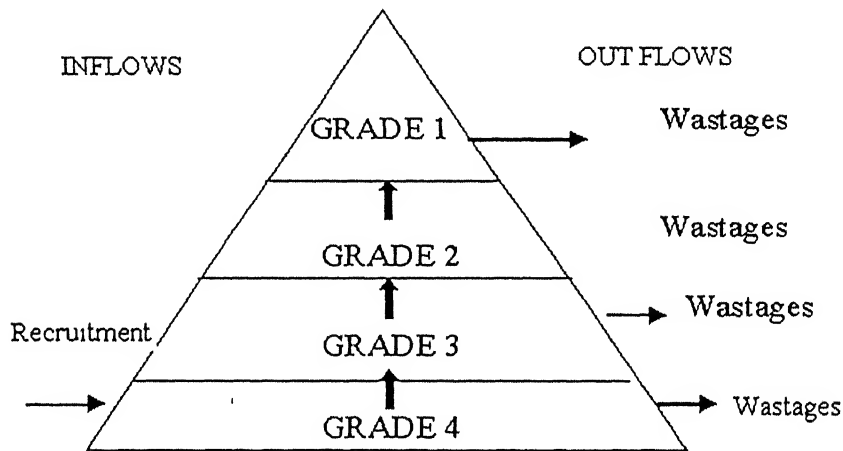


Fig 1.1: Modeling of a human resource system as a set of interconnected stocks with flows(inflows and outflows) between them.

The following questions serve to exemplify how transition matrix type model would help to solve following problems:

- (a) What will the grade structure be at various points in time in the future if present pattern of attrition and promotion continues?

- (b) What should the promotion rates and recruitment numbers be, to help achieve a desired structure or distribution of personnel over grades in a specified time frame?
- (c) What impacts will expansion or contraction of the organization has on the promotion prospects or on the grade structure (population by grade)? What can be done to anticipate and minimize any ill or undesirables effects of such changes?
- (d) Is there an ideal age structure for a particular organization?

A manpower model for this discussion is a mathematical description of how changes may occur in the system. Such modeling begins with the specification of the constraints under which the real system operates. Secondly, a model must specify the mechanisms, which generate flows, such as promotions or demotions-generally under the control of managers-and voluntary wastages that are not under direct management control. In addition, there may be assumptions about the future levels of manpower in the different grades. These are often based on a blend of historical data and management prerogatives and policies.

Assumptions about personnel flows may be classified variously. Two such classifications commonly noted during literature review are: *stochastic/deterministic and push/pull* (Grinold and Marshall, 1977). If we assume that exactly 10 percent of those in a particular grade would leave in a given year, then we are making a deterministic assumption about that flow. Here there is no uncertainty about how many people will actually leave. If, on the other hand, we were to suppose that each individual in the grade has a 10% probability of leaving sometime during the year, then we would have made a

stochastic assumption as we could not predict precisely how many would leave, but only the probability of departures.

1.6.1 The push/pull nature of flows

Flows may also be classified according to whether the impetus for personnel moves lies at its starting point (from which the individual is departing) or at its destination. Thus if an individual moves into a higher grade because it was necessary to fill a vacancy arising at that level, we can think of the person as being *pulled* into the higher grade. If on the other hand, the move to the higher grade is automatic as a result of acquiring a new qualification the move takes place because of an event occurring at the point origin, such flows are called *push* flows. The distinction between *push* and *pull* flows is often not as clear-cut as this account might suggest. There can, for example, be both a *pull* and a *push* element involved in a move when a vacancy arises, which can only be filled by a suitably qualified person. In the stochastic case, *push* flows are modeled by specifying the probability of the transition event question. In the case of a *pull* flow, a move is determined by the creation of a vacancy together with the choice of an individual to fill it. There may be chance element at either or both of these stages, which can be expressed, in *probabilistic* or *stochastic* terms. In a deterministic model the flow, proportions replace probabilities.

1.6.2 Assumptions in transition flow models

A model is essentially a description of the system together with a set of assumptions about the behavior of the uncontrolled variables or the environment. Such assumptions may be based on two kinds of considerations, which may be described as *empirical* or as *hypothetical*. In an *empirical* study

the desired results are derived from past observation of the system. This amounts to supposing that the observed trends or patterns seen in the past will continue into the future. In many planning situations, however, we are less interested in projecting the past. Rather, we wish to explore a range of possible futures. That is, we are often seeking the answer to “*What if...?*” questions. In these circumstances we often find it useful to observe and evaluate the effects of assuming, for instance, different probability levels, because of the insight it gives us into the behavior of the real system. Such explorations are guided by the manpower planners making hypothetical assumptions.

It is commonly seen that personnel flows are proportional. They depend on stocks at various grades. This provides the basis for use of so-called Markov Chain type transition flow models in manpower planning. The logic behind the Markov models is given below.

1.6.3 Construction of a Markov model

In constructing the Markov chain model, the system is divided into k categories or states, which, for brevity, but without loss of generality, would be synonymous to grades in a manpower system. The *probabilities* of a transition or transfer between any pair of these grades may then be set out in an array or matrix, as follows:

$$T = \begin{bmatrix} \rho_{11} & \rho_{12} & \dots & \dots & \rho_{1k} & \alpha_1 \\ \rho_{21} & \rho_{22} & & & \rho_{2k} & \alpha_2 \\ \cdot & \dots\dots\dots & & & & \cdot \\ \rho_{k1} & & \rho_{k2} & & \rho_{kk} & \alpha_k \end{bmatrix}$$

where the element ρ_{ij} is the probability that an individual in grade i at the start of the time period (say year 1) is in grade j at the end of that period, and α_i is the probability that a member of grade i at the start has left by the end of the interval (the beginning of the next year). These chances of a transfer are known as *transition probabilities* in the stochastic model, and *transition proportions* in the deterministic model. The assumptions for the Markov chain are that individual employers (making up the population in a given grade) move independently and with identical probabilities that also do not vary over time. Since each person must either stay where she or he is, or move to another grade, or leave, each matrix sums to 1 as

$$\sum_{j=1}^k \rho_{ij} + \alpha_i = 1 \quad \forall i. \quad (1.1)$$

Here matrix $T = \{\rho_{ij}\}$ is called the *transition matrix*, and the row vector $A = (\alpha_1, \alpha_2, \dots, \alpha_k)$ is called the *attrition vector*, made up of attrition probabilities for a given grade. It is implicit in this specification that the time is discrete; in practice the unit of time will typically be a year or month.

The elements of T and A will have numerical values in any modeling application, specified by hypothesizing the values of ρ_{ij} and α_i , or by estimating these probabilities from the past data. In a realistic HR model, we also have to specify “recruitment” flows (the inflows into the different grades of the manpower pool), by indicating that $R(T)$ denotes the total number of individuals recruited in the time T . These recruitments are assumed to be allocated to the different categories (grades) using proportions r_1, r_2, \dots, r_k .

where $\left(\sum_{i=1}^k r_i = 1 \right)$ $r = \{r_i\}$ is called the *recruitment proportion vector*. $R(T)$

and $\{r_i\}$ are typically controlled directly by management.

The details for developing Markov type models for manpower systems are provided by Bartholomew (1979) The assumptions in Bartholomew's model are

- (a) The transition probabilities do not vary with time.
- (b) The transition probabilities are the same for all individuals within a class/grade.
- (c) The individuals behave independently and that transition probabilities are functions of the current state only.

The flow process here is represented by the equation

$$n_j(T) = \sum_{i=1}^k n_{ij}(T-1) + n_{oj}(T), \quad (j = 1, 2, \dots, k) \quad (1.2)$$

Where

$n_j(T)$ = Number of individual in grades j at time T .

$n_{ij}(T-1)$ = Number of individual moving from grades i to j from time $T-1$ to T .

$n_{oj}(T)$ = Recruitment flow between time periods $T-1$ to T .

k = Number of categories/grades in the manpower system.

The transitions in the stochastic systems are governed by probabilities so the terms $\{n_j\}$ and $\{n_{ij}\}$ in the above equations are really random variables.

However, since the equations are linear, the same relationship will hold for the expected values of these variables so that

$$\bar{n}_j(T) = \sum_{i=1}^k \bar{n}_{ij}(T-1) + \bar{n}_{aj}(T), \quad (j=1,2,\dots,k) \quad (1.3)$$

Where \bar{n} denotes the expected or average value of each of the “n” s.

Given the “Stock levels” in the different grades at the start the flows become

$$\left. \begin{aligned} \bar{n}_{oj}(T) &= R(T)r_j \\ \bar{n}_{ij}(T-1) &= \bar{n}_i(T-1)\rho_{ij} \end{aligned} \right\} \quad (i,j=1,2,\dots,k) \quad (1.4)$$

$$\bar{n}_j(T) = \sum_{i=1}^k \bar{n}_i(T-1)\rho_{ij} + R(T)r_j, \quad (j=1,2,\dots,k) \quad (1.5)$$

Or, using the matrix notation.

$$N(T) = N(T-1)T + R(T)r, \quad (1.6)$$

Where, $N(T)$ is the row matrix of grade wise stock level at time T , $N(T-1)$ is the row matrix of grade wise stock level at time $(T-1)$, and r is the recruitment vector. This becomes the basic prediction equation, which occupies a prominent place in almost all applications of Markov chain type models.

1.6.4 Estimation of transition probabilities in model development

If the Markov modeling assumptions hold, it is possible to obtain point estimates of the transition probabilities from the historical data by the method of maximum likelihood. However, for this we need complete stock and flow data. If $n_{ij}(T)$ is the observed number of individuals who are in grade i at time (T) and in grade j at time $(T+1)$ and if $n_i(T)$ is the stock (number of individuals

present in grade I) at the beginning of this interval T , then the estimate of ρ_{ij} is given by Bhatt (1972).

$$\hat{\rho}_{ij}(T) = \sum_{t=1}^k n_{ij}(T) / n_i(T), \quad (j = 1, 2, \dots, k) \quad (1.7)$$

If stock and flow data are available over several time intervals for which the transition rates can be assumed to be the same, then

$$\hat{\rho}_{ij}(T) = \sum_T n_{ij}(T) / \sum_T n_i(T), \quad (i, j = 1, 2, \dots, k) \quad (1.8)$$

Similarly, the estimate of attrition probabilities $\{\alpha_i\}$ may be obtained in an identical manner by using certain “wastage flow” terms in the numerator, while keeping the denominator equal to $\sum_T n_i(T)$.

$$\hat{\alpha}_i(T) = \frac{\sum_T \alpha_i(T)}{\sum_T n_i(T)} \quad (i = 1, 2, \dots, k) \quad (1.9)$$

1.6.5 Validation of the model

Admittedly, the danger exists that one would fit Markov models to stock and flow data in a purely mechanical way irrespective of whether or not the underlying assumptions for such a model are satisfied or not. Indeed, if there are gross variations from the required assumptions, any forecasts made with the model are likely to be invalid. Three courses are open to the analyst that separately or in combination can help avoid such a modeling blunder. These are, respectively,

- (a) Conduction of statistical tests of the assumptions.
- (b) Comparison of the predictions of the model with actual outcome

(usually using historical data), for seeking empirical validation.

- (c) Designing the model, especially with regard to the choice categories (e.g. grades), so as to make the assumptions, as nearly correct as possible.

The key objectives of fitting a mathematical model to real data (in this context) are (1) to provide improved insights into the dynamics of the system, and subsequently (2) to help make reliable projections. The utility model may be therefore judge by how successfully it delivers the objectives. One very useful way of validating a model is by testing its performance on historical data. If sufficient data are available, one can predict the later part of the series of data using the earlier data. Once the model has been successfully validated, it can be made operational at the user's end.

1.6.6 Inputs necessary to set up manpower model for Corps of EME

- i) Men-on-roll (say as of April 1) of each year at each rank. (say M1, M2, M3, M4 and M5),
- ii) Promotion details, grade-wise,
- iii) Fresh recruitments from external sources. These are direct inflows into managerial grades,
- iv) Earlier years' attrition details in each grade,
- v) Possible management policy alternatives impacting fresh recruitment, screening, promotion and forced separations, and
- vi) Superannuation anticipated in each of next 10 years.
- vii) Year wise projection of attritions (resignations, deaths, discharge, etc.) other than superannuation for the next 10 years.

The data on anticipated superannuation and attritions due to various reasons are primarily based on the averages of earlier years' data.

1.6.7 Processes within the model

Process 1:

The model reads raw data on men-on-roll, promotions, attritions, and inflows through screening and fresh recruits and then it calculates manpower flows between grades for each year starting from a particular year as a base year. The data are recorded year wise as shown in Table 1.1. Here, N_{11} , N_{22} , N_{44} represent number of people who do not leave a particular grade during the year (individuals not promoted). N_{12} , N_{23} , N_{34} , N_{45} represent promotions from one grade to the next higher grade, A_1 A_5 represent number of employees separated from each grade through superannuation, resignation, death, discharge etc.

Table 1.1: Manpower flow between grades in a year

From Grades	To grades						
	M1	M2	M3	M4	M5	Attrition	Total
M1	N_{11}	N_{12}	0	0	0	A_1	N_1
M2	0	N_{22}	N_{23}	0	0	A_2	N_2
M3	0	0	N_{33}	N_{34}	0	A_3	N_3
M4	0	0	0	N_{44}	N_{45}	A_4	N_4
M5	0	0	0	0	N_{55}	A_5	N_5
Recruitment	R_1	0	0	0	0	-	-

S_1 S_5 are summations of all column entries in each grade respectively.

Therefore, they represent grade wise men-on-roll at the beginning of the year and are given by,

$$N_i = \sum_{j=1}^5 N_{i,j} + A_i, \text{ For any grade } i, \quad (1.10)$$

Where $N_{i,j}$ is the body flow from grade “i” to grade “j” and A_i is the flow to attrition from grades “i” during the year.

R_1, \dots, R_5 are total inflow to each grades through recruitment and also through screening during the year. Hence, in a generalized term,

$$R_i = S_i + F_i$$

Where, R_i is total inflows to grade i during a year, S_i is number of employees (supervisors) entering into grade i through screening in a year, and F_i is number of fresh recruits to grade i during above period. In the case of EME there are no intakes at level other than in the form of fresh recruit.

Since, there is no accelerated jumps at a time during promotion of an employee and also no demotions exist, other entries in Table 1.1 are zeros.

Process 2:

Estimation of parameters of the transition probability matrix with the help of movements within the grades from earlier years:

This uses the principle of Maximum Likelihood Estimates (Bhatt, 1972). By using the equation 1.10, the estimated *transition probability* from grade i to grade j is given by

$$\hat{p}_{i,j} = \frac{\sum_{T=1}^8 N_{i,j}}{\sum_{T=1}^8 N_i}; \quad i, j = 1, \dots, 5 \quad (1.11)$$

Where,

$N_{i,j}$ = Flow from grade i to grade j during year T ,

N_i = Men-on-roll in grade i at the beginning of the year,

$i, j = 1, 2, \dots, 5$

The estimated transition probability matrix T , based on the above equation may be represented as denoted in matrix notation above.

Process 3:

With the help of the maximum likelihood estimator formula, the model calculates the attrition vector A as:

$$A = \begin{bmatrix} \hat{a}_1 \\ \hat{a}_2 \\ \hat{a}_3 \\ \hat{a}_4 \\ \hat{a}_5 \end{bmatrix}$$

where,

$$\hat{\alpha}_i = \frac{\sum_{T=1}^8 (A)_i}{\sum_{T=1}^8 (N_i)}; \quad i = 1 \dots 5 \quad (1.12)$$

and A_i = number of employees separated from grade “ i ” in a year.

Similarly, by using above principle, one obtains the inflow vector R as:

$$R = [\hat{r}_1, \quad \hat{r}_2, \quad \hat{r}_3, \quad \hat{r}_4, \quad \hat{r}_5],$$

$$\hat{r}_i = \frac{\sum_{T=1}^8 (R_i)_T}{\sum_{T=1}^8 \left(\sum_{i=1}^5 R_i \right)_T} \quad (1.13)$$

R_i is total inflow to grade i , during the year as explained in process 1 above.

Process4:

Calculation of the projected population by grade, based on the population in base year, uses the row vector M of men-on-roll and transition probability matrix T in the following manner:

Let M_T be the row vector of men-on-roll i.e. $[N_1, N_2, N_3, N_4, N_5]$ in the base year T .

The expected men-on-roll after a year due to transition (without considering inflow at this stage) is

$$M'_{T+1} = M_T * T \quad (1.14)$$

Process 5:

The Model then calculates the expected total separations E (after one year) from the attrition column vector A and the base men-on-roll, M_T .

$$E = M_T * A \quad (1.15)$$

Process 6:

From the anticipated separation data (superannuation) for next 9 years and year-wise projection of other separations (resignations, deaths, discharge, etc.) reflecting advice of HR experts of the subject industry, the model generates the grade wise wastage vector W for future years, in the following manner:

$$W = [\hat{w}_1, \quad \hat{w}_2, \quad \hat{w}_3, \quad \hat{w}_4, \quad \hat{w}_5]$$

Where,

$$\hat{w}_i = \frac{\sum_{T=1}^9 (V_i)_T}{\sum_{T=1}^9 \left(\sum_{i=1}^5 V_i \right)_T}, \quad i = 1 \dots 5, \quad (1.16)$$

And $(V_i)_T$ = Anticipated retirements in grade , during time T.

Since retirement data is assured to be available for the next 9 years, we have considered $(V_i)_T$ to vary from 1...9.

Process 7:

To reduce the impact of the difference between the anticipated future separations P and the expected outflow E through attrition vector on the grade-wise future manpower, adjustment of the expected men on roll due to transition M^t is done. This is done with the help of an adjustment vector F as follows:

$$F = (P - E) * W. \quad (1.17)$$

where, P is anticipated future separations, or the sum of anticipated retirement V and anticipated other separations H based on the averages of earlier years' separations data appropriately modified reflecting judgment of HR experts familiar with the subject industry i.e. $P = V + H$.

Process 8:

As the final step in the process, grade-wise manpower projection M_{T+1} for the following year is developed as

$$M_{T+1} = M'_{T+1} - F_{T,T+1} + R_{T,T+1} - X_{T,T+1} \quad (1.18)$$

M_{T+1} = ((Expected men-on-roll M'_{T+1} after a year due to transition) – (Adjustment vector $F_{T,T+1}$ during this period) + (Management policy decisions on inflow (through fresh recruits and screening $R_{T,T+1}$) – (forced outflow $X_{T,T+1}$ during the above period)).

With the help of the above manpower equation, grade-wise population for the future years may be calculated by repeating the process for each of the following years.

1.7 Suggested model to be adopted by the Corps of EME

Manpower model based on Markov's stochastic processes are the ones that suit the organizational structure of the armed forces & hence would be the most appropriate ones to be adopted by the Corps of EME.

1.8. Conclusion

This study aims at studying the implications on HRM due to changes in the socio-economic and technological environment. The study has a lot of relevance for the Corps of EME. All the issues covered in the study would immensely help the Corps of EME in addressing the problems related to the HRM aspects of the Corps. Besides the researcher's interest in the topic, lack of specialized study in this area and the various inadequacies of the existing frameworks on the study of Human Resource Management in the Corps of EME, motivated the researcher to take up this study, as his thesis work.

CHAPTER 2

STUDY DESIGN AND METHODOLOGY

2.1 Introduction

This chapter discusses the methodology used for the conduct of the study. As the scope of the study has been restricted to the Corps of EME, one of the premier training institutes of the Corps was selected for collection of the primary data, needed for the conduct of the study through a survey. The study also required collection of some secondary data which was quantitative in nature. Besides survey, qualitative method of unstructured interview was used to get in-depth information on the relevant issues.

2.2 Obtaining the sanction for collection of data

As the study involved collection of classified information pertaining to the manpower in the Corps of EME, the sanction was required from the EME Directorate to authorize the researcher to collect the required data from the EME Record Office, located at Secunderabad and to conduct the survey at MCEME (Military College of Electronics and Mechanical Engineering). The EME Records is the central agency involved in the manpower planning process in the Corps of EME. It holds all relevant information pertaining to recruitment, promotion, posting and discharge of the soldiers enrolled in the Corps of EME.

2.3 Selection of the universe and sample for collection of data

The *universe* for conduct study has been restricted to the Corps of EME of the Indian Army. In order to get a true representative group of the universe chosen, MCEME located at Secundarabad was chosen as the *sample group* for conducting the study. MCEME happens to be the *alma mater* for all the tradesmen enrolled in the Corps of EME. It's a central institute where all the tradesmen posted at different EME Units, all over India, come for training and up gradation courses during various stages of career. Thus choosing an institute like MCEME helped in reducing any biases that would have resulted had the sample been restricted to one particular unit of the Corps of EME. It also helped in getting a fair mix of respondents belonging to different trades and rank categories, and different types of units located in field/peace areas.

2.4 Nature of data and method of collection of data

The study involved collection of *primary and secondary* data. While the *primary* data was collected directly from the respondents through a *schedule*, the *secondary* data was collected from EME Records Office.

The *primary data* was collected by conducting a survey at MCEME with the help of a *structured interview schedule*. For the collection of the primary data, *schedule* was preferred over other methods because it is a direct method of collection of the required information, where in the investigator is physically present while filling the questionnaire. This way he can give any clarification or convey any underlying idea that may not be understood by the respondents. This was done keeping in view the educational background and the comprehension level of some of the respondents.

2.4.1 Primary data

The questions in the *schedule* were intended to highlight the qualitative dimension of the problem. Statistical data were collected on the perception regarding army life. The schedule had a mix of *objective and subjective* questions.

The *objective* questions related to the demographic characteristics of the respondents, job satisfaction, job related stress, social comparison with civilian counterparts and reasons for continuing in the service. The respondents were asked to respond on a Likert scale, ranging from 1 to 5.

The *subjective* questions in the schedule were designed with the aim to get in-depth data on the various aspects covered in the *objective* questions. These questions were framed to get detailed opinion about attributes like views on 'perception –reality' match, good and bad aspects related to their job in army, steps to be taken to improve the training aspects, reasons for increasing number of individuals opting for premature retirement. The interview schedule is given in Appendix-A.

2.4.2 Secondary data

The secondary data, which was *quantitative* in nature, was collected from EME Records Office at Secunderabad. It consisted of the following data:

- (a) Authorization and the existence of manpower in the Corps.
- (b) Attrition in manpower accruing at different ranks due to various reasons, i.e. death, desertion, disciplinary grounds, medical grounds and superannuation.
- (c) The past pattern of recruitment showing number of vacancies released versus the actual intake in each year.

- (d) Data on the trade structure of the Corps.
- (e) Duration of technical training periods of different trade categories

The above data was collected for the past ten years. Besides collection of this data, the researcher made an effort to learn about the present manpower planning procedures followed at EME Records Office, particularly those related to demand of vacancies for fresh recruitment to be carried out each year, method of forecasting wastages arising at the end of each training year, policy decisions regarding postings, trade allocation and re-mustering of trades in the Corps of EME.

2.4.3 Interview schedule

The interview schedule had a mix of *close* and *open* ended questions. The questions were kept short and simple to avoid ambiguity, keeping in view the comprehension level of all categories of respondents. The *close* ended questions were either dichotomous or had multiple choices. While the *closed* ended question helped in obtaining the strength of opinion or agreement with certain statements, the *open* ended questions were designed to get an insight into a particular issue.

2.4.4. Other sources of data

Besides gathering primary data through a schedule and secondary data from EME Records, the researcher interviewed various officers involved in policy making related to manpower planning and training of soldiers in the Corps of EME. This was done in the form of *unstructured/informal interviews*. During this interaction, the interviewees were given a broad outline of the study objectives; and were asked to give their perception and views about the

various problems faced by them and their possible solutions. Some of the key respondents for this study were:

- (a) Chief Records officer, EME Records
- (b) All section officers, EME Records
- (c) GSO-1 (Training), MECME (General Staff Officer)
- (d) Selected faculty members at Mechanical Engineering Department, MCEME
- (e) Director, EME (Personnel), Army HQ.

2.5 Pilot study

After finalizing the first draft of the schedule, a pilot study was conducted. Station Workshop, EME, located at Kanpur Cantonment, which is an EME unit, was chosen to carry out the pilot study. 15 respondents from the Station Workshop were contacted to fill the schedule. Based on their responses and the problems faced in answering the questions, some of the questions were rephrased. After the pilot study, the researcher went to Secunderabad to collect data from MCEME and EME records.

2.6 Reference period

The data was collected from MCEME & EME Records office, both located in Secunderabad in the months of October - November 2002.

2.7 Analysis of data

After collecting the data, the responses were classified into different homogenous groups and were coded. The categorical data was analyzed using frequency distribution while the quantitative data was analyzed using

descriptive statistics like mean & standard deviation. Chi square distribution, correlation and regression analysis were used for some selected variables. All the analysis work has been done using the SPSS package.

In the subjective questions where the respondents were asked to express their views and opinions on different issues, coding of the responses involved carrying out a *content analysis* of the responses. Content analysis yields categories of responses that can be described in the form of a frequency distribution. For example, one of the subjective questions asked to the respondents was:

“What as per you are the worst aspects related to army life?”

The responses given to this question were first recorded and analyzed. There were many responses to this question. They were:

- (a) Administrative work is emphasized over the trade work.
- (b) Restriction on leave
- (c) Too much of stress is given on discipline.
- (d) Sentry duties during the nights.
- (e) It's a 24 hours engagement and one does not get sufficient time for looking after his personal needs.
- (f) Wastage of technical manpower on administrative duties.
- (g) Lack of promotion avenues - many jawans meet the criteria required for the next promotion but are not promoted.
- (h) Taking orders from a person junior to you in terms of service, but senior in rank.

Based on the frequency to these responses, a content analysis was carried out and the responses were divided into five categories: 'a-d' and a separate category 'e' made for other responses.

This methodology helped in grouping the responses to the subjective questions.

2.8 Organization of thesis

The thesis is organized into six chapters, references and four appendices. Chapter 1 gives a background of the Corps of EME with its role and the organization structure, states the problem along with the objectives and the rationale of the study. This is followed by the relevant literature review where the concepts of HRM are examined. In Chapter 2 the methodology for the conduct of the study has been discussed. Chapter 3 analyzes the secondary data pertaining to the manpower planning. The purpose is to identify the problems with the present manpower planning processes in the Corps. This chapter also reviewed the existing trade structure, particularly in the light of the need for downsizing of the Corps. Chapter 4 discusses the implications of the review of the trade structure on the technical training requirements. The issues related to training have been discussed in the chapter with the help of some case studies. The chapter also covers the problem associated with the present recruitment and the subsequent trade allotment system in the Corps. Chapter 5 starts with a brief discussion of the changing perspective of the military organizations of the Western countries. Then it discusses the various socio-psychological issues having impact on the HRM functions of the Corps. Finally, Chapter 6 summarizes the study and

suggests some policy measures to be adopted in the Corps. This is followed by the limitations of the study and the problem for future research.

CHAPTER 3

MANPOWER PLANNING PROCESSES IN THE CORPS OF EME

3.1 Introduction

The intent in this chapter is to review the manpower planning processes currently in use in the Corps of EME. The present system of recruitment and trade allotment has been studied to find the problems associated with it. This is followed by an analysis of the past recruitment and wastage pattern by studying the data for the past ten years. The need to review the existing trade structure in the Corps has been examined in view of downsizing of the Corps. Finally the issue related to an early retirement age of the soldiers has been studied with a view to examine the possibilities of offering a second career option to these individuals.

3.2 Review of the present manpower planning process

The present system of manpower planning was studied in details during the visit to EME Directorate at Army HQs at New Delhi and EME Records office at Secunderabad. Besides collecting the relevant data, the researcher interacted with section-in-charges of the different sections dealing with postings, promotions, wastages and recruitment at EME Records. Important policy letters issued from higher headquarters pertaining to manpower planning were also referred to. Some of the observations related to the manpower planning process are given below:

3.2.1 Trend in release of vacancies and actual recruitment

Table 3.1 presents the data on year wise release of recruitment vacancies and the actual intake from 1979-80 to 1999-2000. The same has also been depicted graphically in Figure 3.1.

Table 3.1: Release of vacancies versus actual intake

YEAR	VACANCIES ALLOTTED	ACTUAL INTAKE
1979-80	4208	3774
1980-81	4650	4897
1981-82	14507	15764
1982-83	11615	9128
1983-84	7845	6153
1984-85	4376	5463
1985-86	14458	12852
1986-87	11334	12273
1987-88	5719	6431
1988-89	2785	3467
1989-90	175	862
1990-91	11595	9628
1991-92	12965	12704
1992-93	11537	13756
1993-94	3540	1854
1994-95	2005	4190
1995-96	7434	6069
1996-97	3802	6665
1997-98	4469	3022
1998-99	2123	866
1999-00	500	431
2000-01	2397	2183
TOTAL	144039	142432

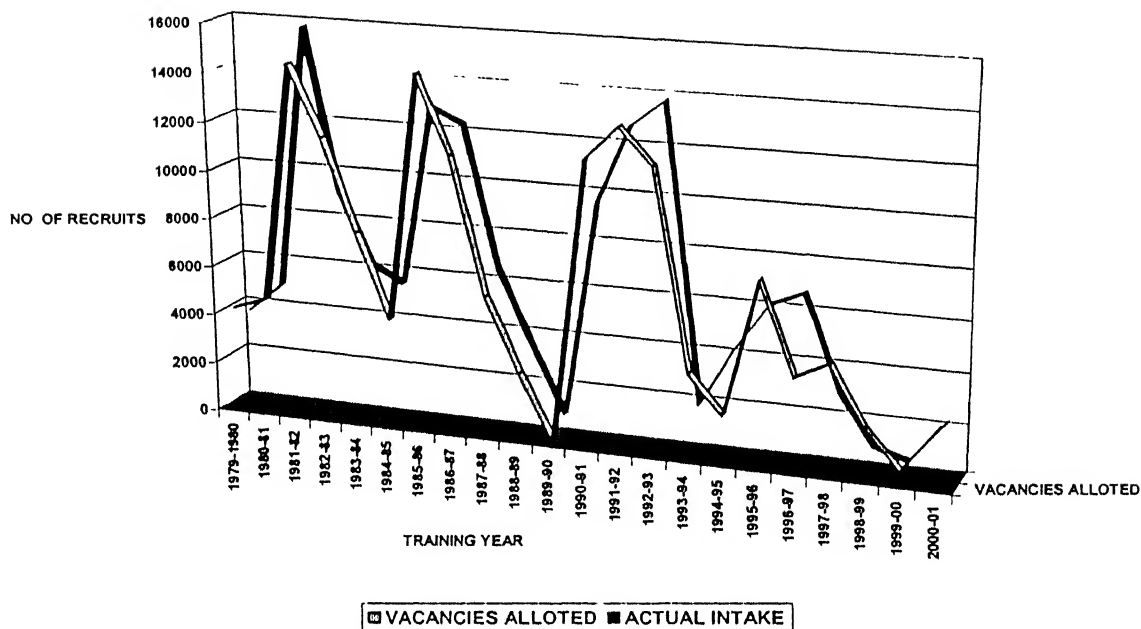


Fig 3.1: Year wise release of recruitment vacancies versus actual intake

As seen in the Table 3.1 and the above figure, the past recruitment pattern in the Corps is not uniformly spread out over the years. This has led to over/under recruitment over a period of time. Consequently for different years, the manpower of the Corps has either overshoot the sanctioned strength or has remained below the sanctioned strength. The peaks in the graph in the years 1981, 1985 and 1991 is mainly attributable to the Indo-China war in 1961 and Indo- Pak war in 1965 and 1971 war when the intake in the army had shot up. Since the recruitment cycle repeats every 20 years (terms of service of a soldier joining army is 20 years), the increase in recruitment in years 1981, 1985 and 1991 are mainly due to this reason. This cycle is likely to repeat after every 20 years if corrective actions are not taken now. Obviously this is a major cause of concern for the manpower planners in the Corps of EME.

As per Commanding Officer of EME Records, the Corps of EME has been asked to reduce its manpower by 13,500 personnel by 2006, out of its present approximate strength of 91,000. In civil organizations the downsizing can be implemented easily by offering VRS or through pink slips. But due to the inherent rigidity of the terms of engagement in army, where in an individual once enrolled continues to serve till has put in 20 years of service, an individual cannot be asked to leave. As a result the reduction in the manpower will have to be done in a phased manner by reducing the intake over the years.

3.2.2 Authorization and actual holding of manpower

The detailed *authorization* and *actual holding* of the manpower in the Corps for the year 2000-2001 is at Appendix 'B'. From this the rank wise distribution of the manpower was prepared and is as shown in Table 3.2. This is also depicted graphically in Figure 3.2.

Table 3.2: Rank wise actual authorization and actual holding of manpower for year 2000-01

RANK	SUB MAJ	SUB	NB SUB	HAV	NK	CFN/SEP	TOTAL
AUTH	474	4,004	4,503	21,569	19,970	40,087	90,607
HELD	483	4,008	4,031	18,999	17,929	47,543	92,993
SURPLUS#	9	4	-472	-2,570	-2,041	7,456	2,386
SURPLUS (%)#	1.8	-	-10.4	-11.96	-10.2	18.6	2.6

(-) sign shows the deficiency

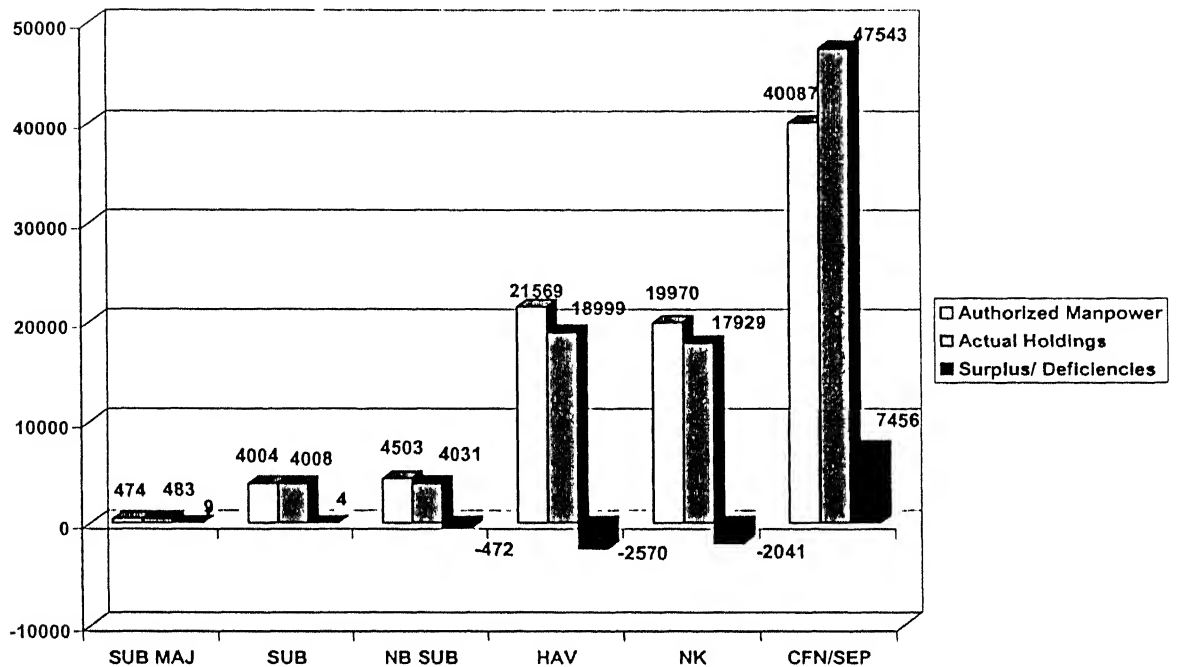


Fig 3.2: Rank wise authorization and actual holding of manpower for the year 2000-01

As can be seen, the *actual holding* of the manpower in different ranks is not as per the *authorized manpower sanctioned*. While the manpower is marginally surplus in the rank of Subedar (Sub), in the rank of Craftsmen (Cfn) it is significantly high at 18.6%. The manpower is short of the actual authorization the rank categories of Naib Subedar (Nb Sub), Havildar (Hav) and Naik (Nk) by 10.4%, 11.96% and 10.2% respectively. The overall manpower of the Corps is surplus by 2,386 (2.6%) from its authorized strength. The critical deficiencies/surpluses are in the rank category of NCOs (surplus in the rank of Cfn and deficient in the rank of Nk and Hav) who constitute 90% of the entire strength of the Corps.

3.2.3 Other issues related to manpower planning

The other problems that came to the notice during the visit to EME Records office at Secunderabad with regards to the manpower planning are:

- (a) Forecasting of recruitment demand for the future years based on creation of vacancies due to promotions and wastages are currently being handled by intuition and certain rules of thumb. All the computations are still being done manually which is not only time consuming but is also error prone.
- (b) Wastages in manpower accruing due to superannuation, compassionate grounds, deaths, desertions, disciplinary grounds, and during training periods is done by taking a fixed percentage for each category of wastage. For example, wastages due to desertions are calculated by assuming a fixed 3% of the total wastages leading to inaccurate predictions.
- (c) As per the Commanding Officer of the EME Records, with the prevalent manpower planning practices, the wastages likely to accrue in the period 2005-06 to 2008-09 is approximately 19,000 personnel, which is going to have an adverse effect on the Corps of EME due to the sudden exodus of skilled manpower, specially at the supervisory level.
- (d) Miscalculation of the anticipated service structure of the tradesmen in Corps of EME
- (e) The present system of manpower planning in the Corps of EME is found to be static in nature. It cannot cater to dynamic organizational needs of today like understanding the

implications of downsizing of the forces level and analyzing implications of reviewing the trade structure on the manpower planning processes.

In view of the problems with the present manpower planning system there is a need felt in the Corps to have an analytical manpower planning model. The model should help in forecasting the wastages and planning the vacancies to be demanded for recruitment to be carried out each year. As seen in the previous chapter, manpower model based on the Markov chain is the one that best suits the organizational structure of the Corps. Hence it is suggested that this model should be adopted to overcome the problems being faces presently by the Corps. As all the relevant data needed to implement the model was not available due to the information being classified in nature, the model could not be implemented. The same would be done after the researcher joins his duty after completion of the M Tech program.

3.3 Trade structure in the Corps

The fundamental human resource structure of the Corps of EME is based on its trade structure. The Corps has 61 trades, which have been created based on the engineering disciplines. These trades have evolved over the last half a century when the Corps was formed to match the available equipment/vehicles on maintenance load of EME and on the repair efforts required. Progressively addition of new trades kept taking place, as and when new type/class of equipment were introduced n the Indian Army.

As on date, the Corps has 12 supervisory, 20 Repair Trades, 12 Ancillary trades and 16 Administrative trades. The breakup of these trade

categories are given in Appendix-D. A summary of these trades is as shown in Table 3.3 below.

Table 3.3: Summary of trade categories in the Corps

Trades	No.of trades	Auth manpower	Actual Strength
Supervisory Trades	12	8,568	7,289
Aviation Engineering.	5	1,799	1,579
Repair Trade	15	46,323	47,802
Ancillary Trade	12	5,338	6,347
Recover Mech.	1	5,770	5,923
Special Trades (SKT and Driver specialist vehicle)	2	2,504	2,477
Administrative Trades	14	20,305	21,576
TOTAL	61	90,607	92,993

In the Corps of EME basically three disciplines of technical manpower are required – mechanical, electrical and electronics. These three broad groups form the basis of the technical trades as shown in Fig 3.3.

3.3.1 Need for review of the existing trade structure

As a result of continuous addition of new trades, the Corps of EME today has the maximum trade categories of all the arms. Each of the 61 trade categories are further divided into 6 ranks categories, thus making manpower planning a complex and complicated task.

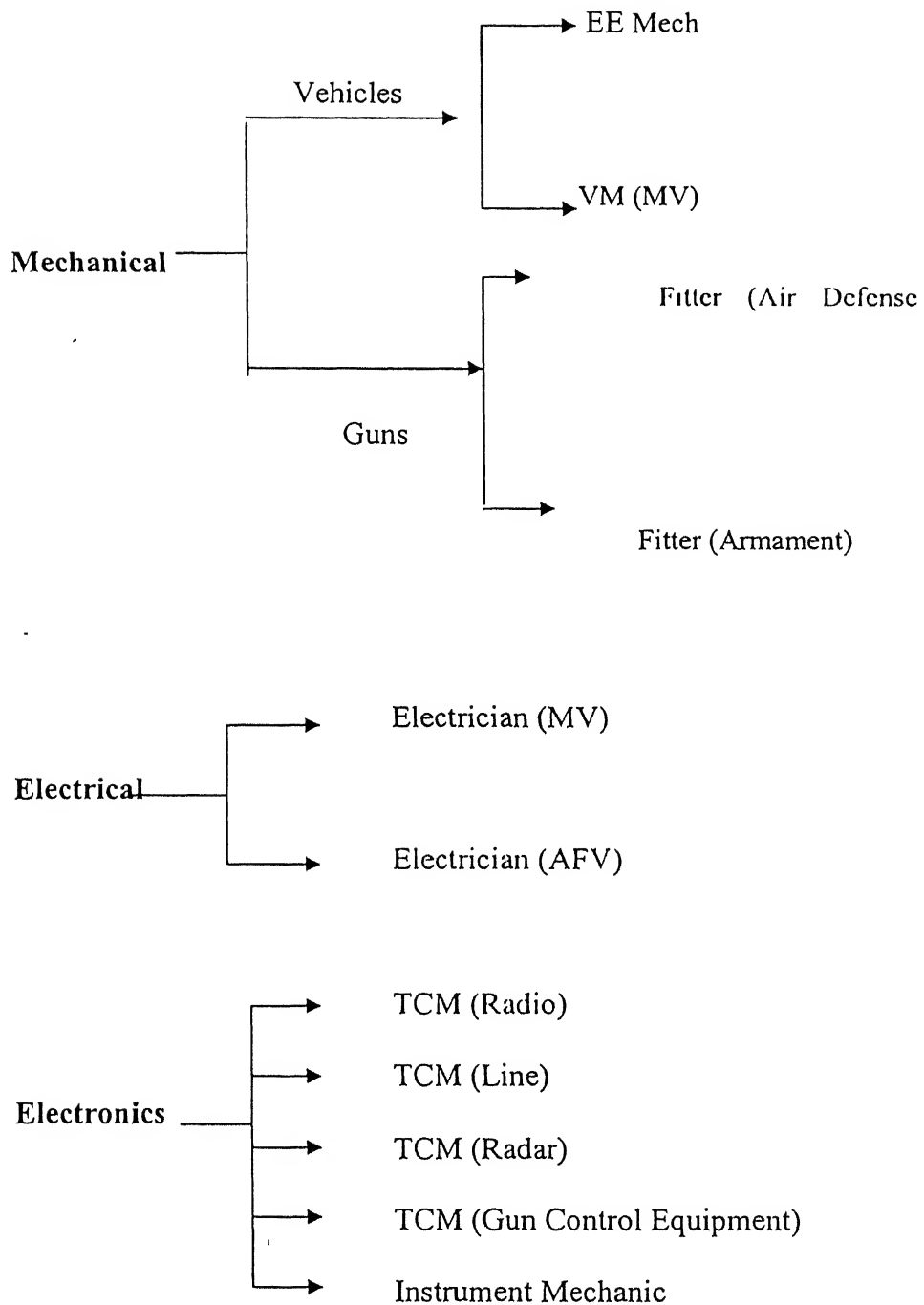


Fig 3.3: Grouping of trades based on the engineering discipline

Over the past few decades the equipment profile of the army has changed and is still undergoing changes through acquisition of new range of equipment and weapon system, which are complex and multidisciplinary in design. This has made certain existing trades either redundant or duplicating the job. Coupled with this is the phenomenon of right sizing of the army, where various arms and services like the Corps of EME, which are manpower intensive, have been asked to find solutions from within to cut down on the manpower. Figure 3.4 shows how the equipment profile of the Corps has changed over the decades vis-a-vis the manpower of the Corps since 1980. While there has been a progressive increase in terms of numbers and variety of the equipment, which would be under the maintenance load of the Corps, the manpower has been reduced since 1990.

The availability of civil infrastructure has improved a lot in last few years. It would be more cost effective to outsource certain low-tech jobs for which expertise is already available in the civil market rather than recruit, train and hold certain tradesmen.

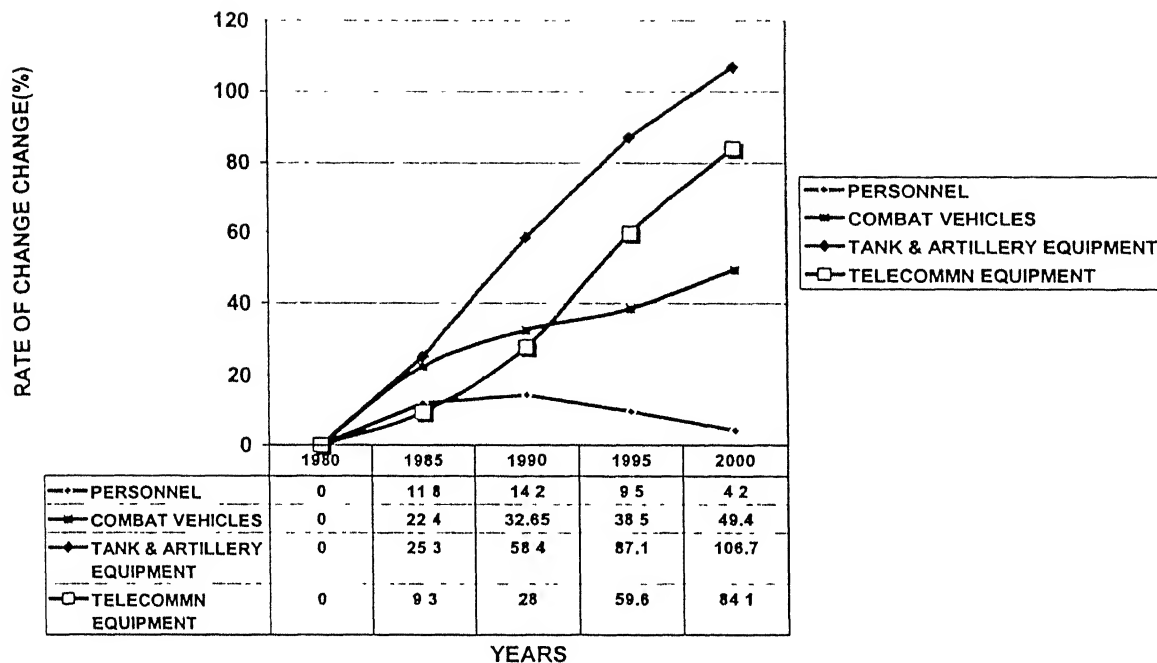


Fig. 3.4: Rate of change of manpower and equipment profile over the years

The education standard of the general population in the country has greatly improved in the last few decades. The need to maintain the sophisticated equipment being introduced can be met by reviewing the intake pattern of the recruits particularly in the Corps of EME.

Thus in view of the existing environment, there is a need to review the existing trade structure of the Corps.

3.3.2 Feedback from environment and through informal discussion

In the schedule, the respondents were asked about their opinion on the need to review the existing trade structure. The question asked to the respondents was:-

“Do you feel there is a need to review the existing trade structure of the Corps? Why do you feel so?”

53% of the respondents felt that there was a need to review the existing trade structure. But the reasons quoted were surprisingly different from what was expected. It was thought that the respondents would favour the need to review the trade structure primarily to improve the technical effectiveness of the Corps, keeping in view the impact of the high technology oriented equipment being inducted in the army. But surprisingly an unexpected reason came to light. Out of 53% respondents who favored the review of the existing trade structure, only 22% gave the reason as to meet the future challenges of the new generation of equipment being introduced. Balance 31% quoted disparity in promotion criteria amongst different trade categories as the reason to review the existing trade structure. Based on this new input received from the respondents an analysis was carried out to review the promotion from Naik to Havildars of different trade categories. The result is as shown in Table 5.4. As evident from the analysis, it was seen that while an individual from Armr, EE Mech and Refig Mech trades becomes a Hav within 7 years of service, an individual from vehicle Mech, Telecom Mech (Radio) and Cook took more than 10 years to become a Havildar. Difference in promotion opportunities in different trade categories was also quoted to be one of the important aspects of the bad aspects associated with career in the army, by the respondents.

During the course of informal interview with the officers involved in the policy decision making, the salient points which emerged regarding review of the trade structure were:

- a) Almost all officers unanimously felt the need to revise the trade structure.

- b) There was a bit of apprehension amongst the officers that any restructuring of manpower, would result into further manpower cuts, in terms of reduction of authorization of manpower to the Corps. They did not favor the restructuring, in there trades, where EME would have to shed its number of working hands.
- c) Most officers supported restructuring by merger of trades where the job content was almost similar.
- d) Majority of the officers wanted deletion of trades with low tech job content as these services could be easily made available through the civil infrastructure.

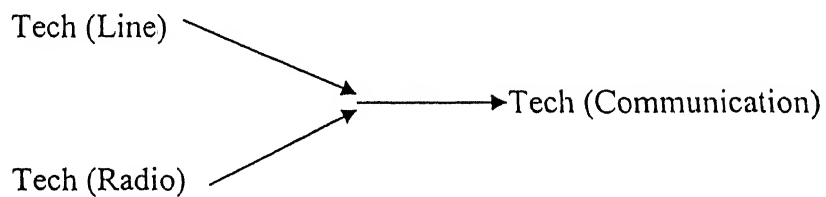
3.3.3 Identifying the scope for merging of trades

a) Electronics trade: TCM (Line) and TCM (Radio)

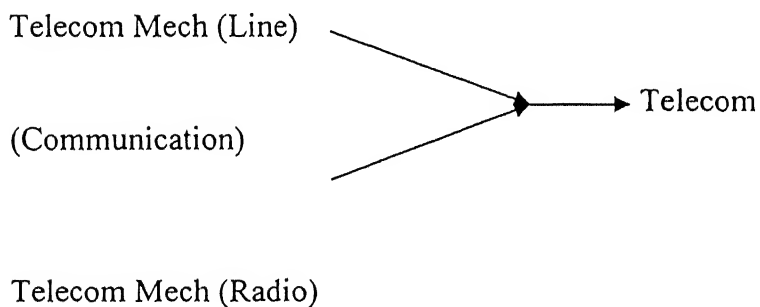
Earlier, the Line and Radio telecommunication equipment were distinct entities with negligible/limited interfacing between the two. However, the advance digital techniques and incorporation of digital techniques and incorporation of digital devices in communication equipment have enabled integrating radio and line equipments. Future communication equipment would be based on mobile links backed by satellite communication. This will have an integration of hand held radio sets connected to each other by state-of-the-art exchanges. This makes it imperative for the technician to have a knowledge about functioning of both radio and line equipment. The future communication equipment would be software intensive with micro controllers and programmable devices. The equipment would have BITE (Built in Test Equipment) with automated fault diagnostic. This would need the technicians to graduate to application of automated techniques rather than have them

classified into radio and line equipment categories. An effective engineering support, in such a digital scenario would demand timely diagnostics and in situ repair capabilities. In the future mobile battle scenario there would be a need of detaching composite teams to carry out repairs independently. The present classification based on Radio and Line equipment would not be a viable solution in such a scenario.

A possibility exists to merge the supervisory trades of Tech (Line) and Tech (Radio) as Tech (Communication) with immediate effect and the base trades of TCM (Line) and TCM (Radio) after 3-4 years as TCM (Communication) as shown in Fig. 3.5.



Merging of Supervisory Telecommunication Trade



Merging of Base Trades after 3-4 year

Fig 3.5: Suggested merger for electronics trade

b) Mechanical Trades: VM (MV) and Rec Mech

The large inventory of military vehicles fleets presently consist of varying technology from outdated carbureted vehicles to the latest MPFI vehicles. The next five years will witness a gradual phasing out of the old technology vehicle. The tasks of carrying out the routine repairs on the vehicles can be taken away from EME and be given to the user units with a view to shed low tech maintenance job in order to allow concentrating on major repair tasks.

The user units which till now were dependent on EME for even the routine low tech repairs can utilize the availability of the civil infrastructure for routine repairs and through use of OEM's participation. This will considerably reduce the workload of vehicle mechanic trade from the present level. The proposed manpower cut from the EME can thus be borne by reducing the vehicle mechanic trades besides merging of other trades. An analysis of both these trades reveals that:

- i. Both trades operate under similar conditions.
- ii. Job contents of both trades compliment each other
- iii. Dual trade concept exists as Recovery Mech undergoes training as Veh Mech grade III during their trade training.
- iv. OEMs more than willing to actively participate in engineering support to vehicles.

In view of the above, Rec Mech trade can be abolished with no further induction into this trade and the vehicle mechanics can take on the task of Rec Mech. Necessary training to the existing vehicle Mechanics can be carried out

at unit level through 'on the job' training concept. For the fresh recruits to be inducted in the future, the training program can be revised to include the training of Recovery Mechanics.

c) Ancillary Trades: Welder and Metal Smith

No revolutionary technological changes have taken place nor are any major tech changes visualized in the near future, as far as the work of welder and metal smith are concerned. At present there are 2988 welders and metal smith held by the Corps as against authorization of 2588 (surplus by 300).

An analysis of their trade training profile highlights that basic training is similar for both the trades. A Welder is given adequate exposure to metal smithing and brazing. Similarly Metal Smith is also taught welding theory and given practical training on electrical welding.

At unit level it is very often seen one trade doing the job of the other, in case of one of these trades is not held in the unit.

The service profile of both the trades is similar and in case of merger, the additional training requirements are going to be minimal. Thus merger of both these trades will provide more flexibility for employment and also ensure better cadre management.

d) Dvr (Spl Veh) and Dvr (MT) trade

At present there are 112 Dvr (Spl Veh) as against an authorization of 91. Analysis of their trade work reveals that with a bit of extra orientation training, the Dvr (MT) can also undertake this job. Hence having a separate driver trade is not required. It is suggested that Dvr (Spl Veh) trade be deleted and Dvr (MT) be used for this task

e) Refrigeration Mechanic trade

There are at present 204 Refrig Mech as against an authorization of 152. Their training emphasis for this trade is on refrigeration equipments, ice plants and air conditioners of specialist vehicles. The syllabus gives the tradesmen an exposure on basic electrical, electric appliances and control circuits, and is common to Electrical trade. It is suggested that this trade can also be deleted in view of the following:-

- i. Low population of the equipment on maintenance load.
- ii. Task can be entrusted to Electrician.
- iii. Civil infrastructure may be used.
- iv. Deletion of the trade will have insignificant effect on engineering support.
- v. No additional training required for Electrical tradesman to undertake this trade.

f) Other low tech trades

As discussed earlier, the improved availability of civil infrastructure all over the country, even in remote places, it may not be economical to recruit, train and hold certain trades. All such low tech trades can be deleted and their work is outsourced. The suggested trades for deletion are:

- (i) Limb Maker
- (ii) Moulder
- (iii) Tailor
- (iv) Painter & Decorator
- (v) Carpenter & Joiner
- (vi) Draughtsman

(vii) Equipment Repairer

(viii) Upholster

3.4 Analysis of the wastage pattern and issue related to post retirement settlement

The year wise wastage pattern due to various reasons is as shown in Table 3.4. As seen from the table, on an average, approximately 6,000 soldiers proceed on retirement each year due to various reasons from the Corps. This constitutes over 6% of the total approximate strength of the Corps which is 91,000. The rank wise break up of these wastages for the year 2000-01 is as shown in Table 3.5.

Table 3.4: Year wise wastages due to various reasons

Period	REASONS						
	LMC	Deaths	Desertion	Discipline	Compassionate	Superannuation	Total
1989-90	493	121	6	6	705	5165	6496
1990-91	254	105	18	9	370	6542	7298
1991-92	451	313	5	12	952	6245	7978
1992-93	392	127	27	25	438	6253	7262
1993-94	153	196	6	21	909	4822	6107
1994-95	170	215	11	12	524	4126	5058
1995-96	118	202	27	43	730	3565	4685
1996-97	202	304	146	151	510	3648	4961
1997-98	229	208	104	238	776	3907	5462
1998-99	247	112	115	415	2574	5211	8674
1999-00	593	131	126	211	2238	4858	8157
2000-01	652	87	65	156	2431	3125	6470
Total	3954	2121	656	1299	13851	56773	78608
Yearly Average	313	189	55	108	1070	4814	6549

Table 3.5: Rank wise wastages due to various reasons for the year 2000-01

RANK	Rank wise wastages for year 2000-01					
	LMC	Deaths	Desertion	Discipline	Compassionate	Superannuation
CFN/SEP	54	14	41	39	383	714
NK	167	21	13	52	696	737
HAV	203	22	7	57	873	1293
NB SUB	115	11	3	5	172	246
SUB	81	16	1	3	271	130
SUB MAJ	32	3	0	0	36	5
TOTAL	652	87	65	156	2431	3125

The terms of service for various ranks in the Corps of EME are as shown in Table 3.6. On an average a recruit when he joins the army, he is 17 years of age. Thus if he retires as a Hav, he would be only 39 years of age.

Table 3.6: Terms of service of various ranks

Rank	Terms of service (in years)
CFN	17
NK	19
HAV	21
NB SUB	23
SUB	25
SUB MAJ	27

The detailed yearly wastages, for the last ten years, due to various reasons in all the rank categories are at Appendix -D. For carrying out the analysis the rank categories have been grouped into two. The ranks of Cfn, Nk and Hav have been grouped in the category of Non Commissioned Officers (NCOs) and the rank categories of Nb Sub, Sub and Sub Maj have been grouped as

Junior Commissioned Officers (JCOs). Based on these groupings the percentage wastages due to various reasons are as shown in Table 3.7.

Table 3.7: Percentage wastages of NCOs and JCOs due to various reasons

REASONS	NCOs	JCOs
LMC	92%	8%
Deaths	93%	7%
Desertions	98%	2%
Discipline	100%	0%
Compassionate	91%	9%
Superannuation	71%	29%

As seen in Table 3.7, majority of the wastages due to all the stated reasons take place up to the rank of NCOs i.e. while the individuals are less than 40 years of age. Out of 98% of the desertions that take place in the ranks of the NCOs, 85% are in the rank of Cfn. All the wastages due to discipline ground are in the rank category of NCOs out of which, 74% are from the ranks of Cfn. 87% of the total wastages in all the ranks are due to superannuation only. Fig 3.6 gives the rank wise detail of individuals retiring due to superannuation. Out of all the personnel retiring in a year due to superannuation, 71% are from the ranks of NCOs (Table 3.7), i.e. by the time they are 40 years of age, as compared to 29% from the rank of JCOs (Nb Sub, Sub & Sub Maj). This brings out another important issue of the early retirement age of the soldiers.

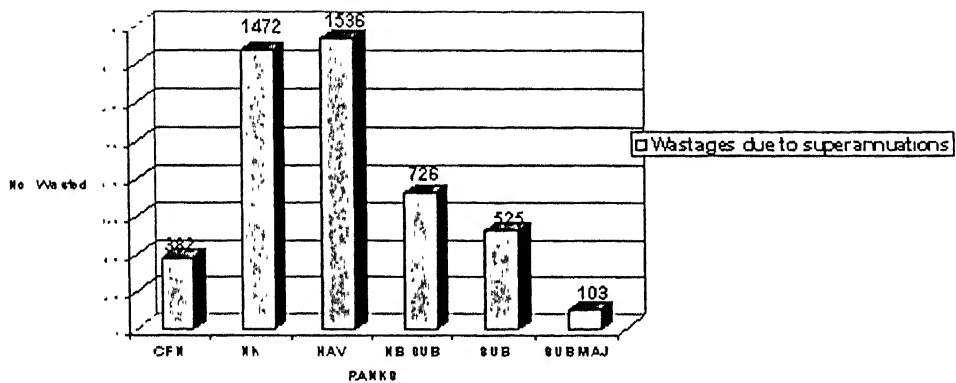


Fig 3.6: Rank wise average yearly wastages due to superannuation

The details of wastages due to LMC (low medical categories), deaths, compassionate ground and disciplinary grounds in the various rank categories are as shown in Fig 3.7. As seen from Fig 3.7 the wastages due to other reasons are also higher in the rank categories of NCOs (Cfn, Nk and Hav) as compared to the ranks of JCOs (Nb Sub, Sub and Sub Maj).

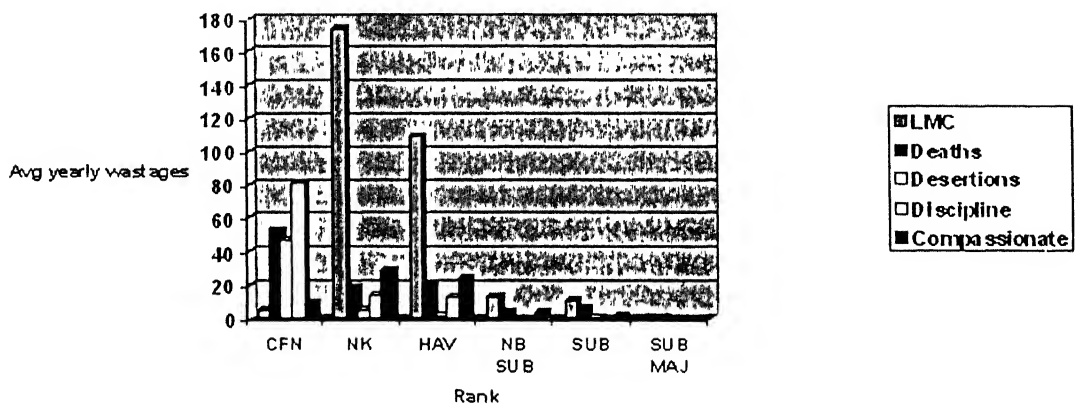


Fig 3.7: Wastages in various ranks due to reasons other than superannuation

92% of discharge on medical grounds is in the rank category of NCOs as compared to 8% from the rank of JCOs.

Thus a majority of the personnel retire before the age of 40 years which is unlike other government jobs where the retirement age is 58-60 years. This early retirement age can be attributed to the hierarchical rank structure of the Indian Army where at each service rank the rejection can be as high as 50% and also the need to maintain a youthful profile of the defense forces. Also this is the time when family responsibilities of an individual are maximum. They are out of job when their children are still studying, daughters are yet to be married and various other social responsibilities are to be performed. As a result a majority of these retiring individuals are willing to/ forced to go in for a second career option.

Retirement also creates a new situation for an individual to interact with other members in the society with a new perspective and social meaning. This interaction in a new situation may lead to various problems for those retiring personnel. Keeping these factors in view, there is a need to explore the possibilities of creation of a second career option for these personnel who are willing to go in for a second career option.

As mentioned earlier, an informal interaction was done with the Commanding Officer of the EME Depot Battalion, where the individuals proceeding on retirement spend approximately a week for their final documentation before proceeding on discharge. Some of the important highlights of the discussion were:-

- a) A majority of the personnel being discharged are from the rank of Cfn and Nk and are in the service bracket of 17-22 years and below 40 years of age.
- b) More than 70% of individuals mainly those discharged due to medical reasons and superannuation want re-employment.
- c) Majority of the individuals seeking re-employment prefer a govt. service/job with PSUs and preferably in their home states.
- d) There is a need felt to have a Resettlement Cell as part of Director General of Recruitment (DGR) at Army HQs and EME Directorate at Army HQ as a coordinating agency which should liaise with Ministry of Defense to seek job opportunities for those willing to opt for a second career option after retirement.

In a technical Corps like EME, a considerable amount of effort is spent in terms of time and money to administer, train and groom raw recruits into skilled craftsmen. Ironically due to the organizational constraints all of them cannot stay with the organization after a certain period of time.

Despite the wide diversity in their social background they are trained and socialized in the uniform pattern of army: sub- culture of discipline, physical fitness, punctuality, dress code, mannerism and loyalty. Molding this heterogeneous force into a homogeneous one is the result of indoctrination during long military training, military socialization, uniform service conditions and secular outlook. This makes the ex- servicemen constitute a category whose experience can be channelized in various types of activities. Individuals, who proceed on retirement, are the selected lot from the youth of

the country and consist of the most able bodied and technically qualified men who have served the army but in return are forced to proceed on retirement at an early age of 40 years. Loosing such skilled manpower, who are willing to serve after their retirement from army, amounts to a colossal waste of precious human resources. By finding avenues for re-employment of such individuals, the Corps would not only fulfill the obligation towards them, who would also serve society. It may be stressed that they are the people who gave the better part of their lives to the service of the nation.

The first step to be taken is to classify the diverse trade categories of the Corps into three or four groups based on the job opportunities available outside. Then there is a need to identify the appropriate civil job for each of these groups. Having done that, the lateral induction of this skilled human resource in other paramilitary organization like Central and State Police Organizations, BSF and CRPF, can be considered by establishing a liaison between Ministry of Defense and Ministry of Labor/Home Ministry through the Resettlement Cell, acting as the coordinating agency between the two ministries. Lateral absorption in Army Base workshops/ Station workshops as civil employees is another possibility that can be explored. A system can be worked out where the state governments and defense PSUs can provide concessions in terms of age relaxation for personnel seeking reemployment for the state government posts from the Corps.

Based on their ranks and service experience their employment may be considered for the following appointments:

- a) **JCOs** - Supervisory posts, Security in charge, Estate manager, Store in charge, Workshop supervisor, Office superintendent, Hostel wardens etc.
- b) **NCOs**- Specialized trades of engineering in PSUs like telecommunication and petroleum industry, ammunition and ordnance factories, Security Guards, Physical Training instructors in Military / Sainik schools, Drivers, Telephone Exchange Operators, Linemen etc.

An interesting point made by the Commanding Officer of the Depot Battalion was that a distinct trend is on the rise amongst the personnel proceeding on retirement these days. It is seen that number of personnel who have completed minimum pensionable service (15 years) but have not attained the age of superannuation is on the rise vis-à-vis those who retire after attaining superannuation. The implication of this trend is that, the younger lots who opt for premature retirement before attaining superannuation are more eligible for a job outside than those proceeding on retirement after superannuation.

To overcome this problem, there is need to categorize these retiring personnel based on priority to be given to them while offering them a second career option. The priorities could be as shown in Table 3.8. Some of the possible job avenues available for this skilled manpower are as listed in Table 3.9.

3.5 Conclusion

Manpower planning performs the important role of matching resources to organizational needs. It involves forecasting the future needs by analyzing the availability of existing manpower. There is an urgent need felt in the Corps to adopt an analytical approach in resolving the present problems related to its

manpower planning process. The model based on Markov chain has been suggested to be adopted by the Corps

Review of the existing trade structure of the Corps to overcome the problem of downsizing and also due to equipment becoming multidisciplinary in nature seems to be a viable solution. The merging of trades with similar job content should not lead to compromise on the organizational effectiveness as merging would lead to increase in the workload and would also require the training to be re evaluated. Though the improved civil infrastructure can be utilized to the optimum, during war the likely response of civil environment needs to be kept sight of while deciding on our repose on civil infrastructure.

A majority of the soldiers retiring from the Corps are willing to go for a second career because of an early retirement age. Letting this technically skilled manpower go waste would be a colossal loss. The ex-servicemen are a category apart and need a special treatment by the army and the state. Their problems are very different from those retiring from government & civil jobs due to early retirement age, special training, disciplined life and a secular outlook. If their problems are not attended to in time, the day is not very far when our youth would shy away from joining the armed forces.

Table 3.8: Priorities for different categories of retiring individuals for a second career option

CATEGORIES OF RETIRING PERSONNELS	PRIORITY FOR SECOND CAREER OPTION
Persons who retire on achieving superannuation or have been discharged on Medical grounds with more than 50% disability	Priority – I (Must be provided a job)
Persons retiring without attain superannuation but have completed minimum pension able service (15 years) & those being boarded out with less than 50% disability	Priority – II (Should be provided a job)
Persons who take pre-mature retirement without completing pension able service	Priority –III (May be provided a job)

Table 3.9: Trade wise employment avenues for retiring personnel

Trade Categories	Job Opportunities
Telecom Mechanics	<ul style="list-style-type: none"> - Telephone & Telecom Industry - Electronic home appliance manufacturing companies
Ancillary Trades	<ul style="list-style-type: none"> - Factories/Industries - Repair Workshops - Gun Factories
Administrative Trades	<ul style="list-style-type: none"> - Hotels/Airports - Clerical jobs - Accountants
Vehicle Mechanics	<ul style="list-style-type: none"> - Automobile Industries - PSUs like BHEL - Own Garage(Self employment schemes)
Electricians	<ul style="list-style-type: none"> - Automobile Industry House -Electrical fittings in House Construction Companies - Armature Winding, battery charging repair - State electricity boards
Drivers	<ul style="list-style-type: none"> - State Transport and Border Roads Organization - Heavy Earthmovers - Coal Mining Industry

CHAPTER 4

RECRUITMENT, TRADE ALLOTMENT AND TRAINING

4.1 Introduction

This chapter analyzes the issues related to recruitment, particularly in the Corps of EME. The problems being faced with the present system of recruitment and trade allotment system are examined through interaction with the training staff at MCEME. A *systems approach* for imparting technical training has been suggested to make training more effective. It is followed by the analysis of the satisfaction level of the respondents with respect to technical training and how in their opinion can the training be made more effective has also been discussed. The re-evaluation of the trade structure as discussed in the preceding chapter will have implications on the training requirements of the Corps. At the end ways of making training more effective are discussed from the perspective of the respondents.

4.2 Recruitment

The recruitment plan of an organization decides the number and type of employees required in an organization. All the other human resource planning/management activity would be governed by the quality of recruits joining an organization. Anecdotal reports support the importance of recruitment (Nakache, 1977). At Cisco, a successful information technology company that puts high value on innovative recruitment, “the only thing worth more than a bright idea is a bright new hire”. The recent researches have shown that there is a relationship between human resource practices and

“bottom line” measures, such as return on assets, profitability and even organizational survival (Martin and Raju, 1988). Recruitment’s potential significance for both individuals and organization makes it an interesting and relevant topic for research. Though recruitment is an organizational function, it is nonetheless intended to influence individual attitudes and behavior. As Schwab (1982) noted organizational and individual issues necessarily go together because the major outcome, i.e. employment, depends on the results of a series of decisions made by both the organization and the individual.

4.2.1 Present recruitment system

The existing recruitment system places too much emphasis on the physical attributes of individual, who is required to pass the mandatory physical tests. The Branch Recruit Office (BRO), where bulk of the recruitment takes place, classifies recruits into two broad categories as general duty (GD) soldiers and technical tradesmen, based on their level of education only, disregarding the aptitude of the new recruits. At present the minimum education qualification is Higher Secondary with Math, Science and English for the technical trades and Matric/ Higher Secondary with Math and English for the non-technical trades. This system may work out to be fine with other arms and services where the nature of job is not of specialized nature but it leads to serious problems in a technical Corps like EME, with a wide variety of equipment on its maintenance load. There is a need to have scientifically designed aptitude tests for trade allocation. *‘The right man at the right job’* is a dictum that cannot be overstated about recruitment and trade allocation to individuals joining the Corps of EME. The vacancies for recruitment are released to different states based on the ratio of the male population of the

states, referred to as the state wise quota. This system of release of recruitment vacancies leads to over / under subscription of vacancies in different states. While in northern and central states the response to the recruitment rallies is overwhelmingly high, the vacancies in most of the eastern and southern states are under subscribed

A majority of the recruitment (75%) takes place through Branch Recruiting Offices (BRO), in the form of mass rallies, for all the arms and services together. Only 25% of the recruitment is done directly by the Corps of EME. The training staff seemed to be satisfied with the quality of recruitment that takes place under the direct supervision of the Corps, but not with that takes place in mass rallies. They felt that the technical requirements of the Corps are not clearly understood when the mass recruitment rallies are conducted, as the staff involved in the selection does not have a representative from the Corps of EME. This affects the quality of recruits joining a technical arm like EME. During these rallies too much of emphasis is given to the physical attributes rather than the technical requirements. The present system of emphasis being given on physical attributes may work out to be fine with Infantry, Armored and Artillery But for a technical Corps like EME, where the nature of job is more specialized, there is a need to have scientifically designed aptitude tests besides the physical aspects. After all a recruit joining EME, is not a soldier but a 'craftsman soldier'.

4.2.2 The environment

The faculty and the training staff at MCEME during the course of informal interaction were asked to comment on the present quality of intake of

70
recruits in EME. All of them suggested that the quality of the recruits joining the Corps was not up to desired level.

The training staff felt that the 'state-wise quota' for release of vacancies to each state also leads to selecting an individual who might not be suitable for the job. They suggested that this system of release of vacancies based on the state wise quota should be replaced by having a system of conducting a common entrance exam at the national level, as is done in case of selection of the officer cadre of the Indian Army. This they felt would improve the quality of intake of the recruits not only in the Corps but also the entire Indian Army. As per the experience of the training staff, they find diversity in the comprehension level of recruits joining the Corps from different states. The faculty and staff felt that recruits hailing from southern and some of the eastern states had a better comprehension level compared to some of the northern and central Indian states. They attributed this to the varying education standards of the various state education boards. The training staff felt that there was a need to screen the recruits inducted in the Corps through the mass rallies. They wanted that the training centers to be given the authority to conduct these tests and to recommend the individuals for the respective trades based on their performance in the test. The recruits who fail to qualify these tests must be considered only for the administrative trades in the Corps or should be considered for induction in other arms and services which are not so technical like the Infantry, Armored and Artillery. The training staff as well as the respondents felt that there was a need to enhance the education qualification for induction into the Corps. This suggestion seems to be a valid in view of the impact of changing technology especially in technology driven

trades like aviation and telecommunication mechanics. A vast pool of trained manpower is available in the country in the form of ITI/ Diploma qualified individuals. Their prior exposure to practical and theoretical knowledge would not only improve the quality of intake but would also be beneficial in reducing the training requirements. In order to attract this experienced and qualified lot and obtain a favorable response from them, suitable incentives in form of additional increments as technical qualification pay could be offered. To make up for the age difference between them and the recruits joining through the normal recruitment channel, antedate seniority could be offered to the individuals joining after qualifying ITI/Diploma.

One of the questions asked to the respondents was: “Would you recommend your relative/acquaintance to join the Army? Why or Why not?” The response obtained was as shown in Table 4.1. 39% of the respondents said that they would recommend their acquaintances to join the army. However, only 13% said ‘Yes’ thinking that army is a good career. A majority 26% said they would recommend their relatives/acquaintances to join the army only if they were not able to find a good job elsewhere. This indicates that for a majority army does not provide a satisfactory career.

Table 4.1: Response to recommending an acquaintance to join army.

RESPONSE	REASONS	Percentage response
YES	Army is a good career	13%
	If he is unable to find a job elsewhere	26%
NO	Less salary	31%
	Unsettled life	18%
	Lack of promotions	12%

61% of the respondents said they would not recommend their relatives / acquaintances to join the army. The reasons are less salary, unsettled life and lack of promotions. This shows that army was not a lucrative career amongst the respondents. Such ideas are definitely going to affect the quality of intake into the army, particularly the Corps of EME. When the respondents were asked to comment on the present quality of intake of recruits, 57% of them wanted the education standards for technical Corps like EME should be higher than for other fighting arms like Infantry, Artillery and Armored Corps.

4.3 Trade allotment procedure

Trade allotment, at the time of recruitment, needs to be based on the levels of competence, aptitude and skills required for a particular trade. The present system of trade allotment after recruitment in the Corps is found to be highly subjective. This results in individual's aptitude for a particular trade not being identified correctly and he being allotted a trade that is not to his liking and capabilities. Such cases if not handled properly might lead to mediocrity setting in due to lack of jobs satisfaction and the technical effectiveness of the individual going down. It is a critical issue and needs to be addressed with due seriousness. The officers in the EME Records office said that the cases of requests from EME unit commanders, requesting for change in trade of the soldiers are on the rise. In most of the cases the requests have to be turned down because of the inherent rigidity of the system. The present system does not permit change of trade if the soldier has put in more than three years of service. The researcher interacted with the staff at the Trade Allotment Cell at EME Training Center at Secunderabad, where the recruits after joining the Corps are allotted the technical trades on completion of their basic military

training. Presently the system followed is based on a questionnaire prepared by the Institute of Psychological Research which dates back to 1967 and it appears to be outdated and irrelevant in today's context.

There is a need felt to adopt a *competence based approach* in the trade allotment procedure. In a competency based approach the competencies defined for a role is used as a framework for the selection process Roberts (1997). As per him:

“The benefit of taking a competencies approach is that it helps in identifying and isolating the key characteristics, which would be used as the basis for selection. The competencies therefore become a fundamental part of the selection process”.

The competency-based approach has also been supported by Wood and Payne (1998) who summarized its advantages as follows:

- a) It increases the accuracy of predictions about suitability for a particular job.
- b) It facilitates a better match between the person's attributes and the demands of the job.
- c) It helps to prevent the recruitment agency from making 'snap' judgments.

An approach based on these lines can provide the most effective means of identifying suitable conditions for a particular trade, as part of the systematic selection process. This trade allotment plan can be based on the seven point developed by Rodger (1952)

The plan covers:

- a) *Physical make up-* health, physique, appearance and bearing. *Attainments –* education, qualifications, and experience.
- b) *General Intelligence-* fundamental intellectual capacity.
- c) *Special aptitude* mechanical/manual dexterity.
- d) *Interests-* intellectual, practical, constructional, social, artistic, technical.
- e) *Disposition-* acceptability, influence over others, dependability, self-reliance.
- f) *Circum stances –* domestic circumstances, occupations of family.

Besides this keeping all the tradesmen under probation for a period of three years would help in overcoming the problem of requests for changes in trade for individuals who are found to be lacking or who show aptitude for a more technical trade. This would prevent situations of square pegs being put into round holes.

4.4 Training

The fundamental aim of training is to help an organization achieve its purpose by adding value to its key resource i.e. the people it employs. Training of manpower and their development should be an integral part of the management process in an organization. There is a need to develop a strategic approach towards training. Training should be seen from a long term perspective, about what skills, knowledge and levels of competence of the tradesmen are desired in reference to the current context and keeping the

future requirements in view. The objectives of training in a technical organization like EME would be:-

- a) To develop competencies of the tradesmen so that they can keep pace with the fast changing technology.
- b) To help individuals grow within the organization in order that as far as possible, its future needs of maintaining the high tech equipment can be met from within.
- c) To improve the commitment of the tradesmen so that they can associate themselves in a better way with the equipment.

For this the training should meet the following criteria:

- a) It should be *relevant*, in that it satisfies the identified and appropriate training needs.
- b) It should be *problem based*, in the sense that it should be planned to fill the gaps between what people can do and what they are expected to do, now and in the future.
- c) Training should be *action oriented*. The objective of a training program should be defined in terms of 'deliverables' i.e. what the people would be able to do after training.
- d) Training should not be regarded as short, isolated courses at various points in a person's career but should be a *continuous process*.

As per Kenney and Reid (1994), resignations and turnover of employees in an organization can increase if they are not trained properly and are made to feel that demands are being made upon them which they cannot fulfill without

knowledge. His individual analytical ability and his acquaintance with the equipment probably allowed him to carry out the repairs. This level of knowledge was adequate till the 70s when the technology involved was simple and the equipment were of older generation. Even the tightening torque required for a bolt was solely based on the skill/experience of the tradesman. This approach was more empirical in nature rather than being analytical. The training requirements during this era were least demanding.

b) Mechanization

During this era which continued till mid 80s, equipment could be repaired based on good theoretical knowledge, availability of special tools, specific to the equipment and through innovation and ingenuity. In such equipment some sort of maintainability could be built-in-during manufacturing. The level of education required was high and training on Special Maintenance Tools (SMTs) and Special Test Equipment (STEs) was sufficient to carry out the repairs.

c) Automation

This is the era the Corps of EME is presently passing through. A large number of diagnostic equipment, jigs and fixtures to identify the problems are being inducted. Dependence on individual's logic and skill is being discarded in favor of diagnostic aided repairs like- Automatic Test Equipments (ATEs) for PCBs of Telecommunication equipment, Auto Vehicle diagnostic equipment for vehicles, Integrated Test equipments for instruments of guns, radars, vehicles & missile systems. Such sophisticated equipment demands increased training requirement and sound theoretical knowledge for handling these equipments.

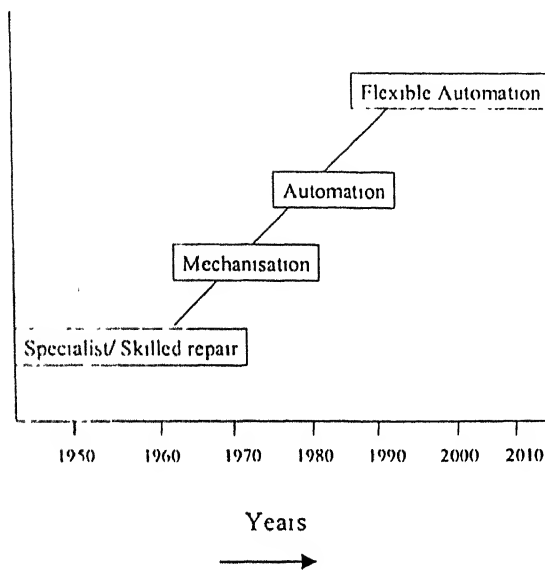


Fig: 4.2: Evolution of training requirements in EME

4.4.2 Impact of technology on training requirements of the Corps of EME

An important aspect related to training is that it should keep pace with the technology in vogue. The impact of future technology on the Corps of EME may lead to following:

- a) Proliferation of high tech equipment
- b) Shorter equipment life cycle
- c) Need for faster fault diagnosis
- d) Reduced repair time
- e) Criticality of spares due to equipment being ex- import in

nature.

The tradesmen of the Corps would be required to possess additional ability in the form of innovation in repairs and higher technological competence. The technical training would need to be revamped to cope up with the deluge of new technology through:

- a) Re-evaluating our training process
- b) Developing multidisciplinary/multi skilled capability of the tradesmen
- c) Develop/update knowledge to keep pace with higher electronics and intelligence built-up in the equipment
- d) Training on *specialist based* concept of repairs.
- e) Psychological conditioning of the tradesmen to accept changes and to meet the challenges through initiative training and honing of the skills already acquired.

The technology of the future would have a significant impact on the training requirements and the aspirations of the user units, from the Corps. The implications of technology on the Corps and the user units are as shown in Table 4.2.

Table 4.2: Impact of technology on training requirements of the Corps of EME

<i>Future equipment would be</i>	<i>Aspirations of user of the equipment</i>
<ul style="list-style-type: none"> - Modular - Complex - High Electronic share - Embedded Computers - More reliable - High degree of obsolescence 	<ul style="list-style-type: none"> - Zero defect - Low MTTR - Up-grad ability to meet future requirements - Faster response

Impact of changing technology on the Corps of EME		
REPAIR TECHNOLOGY	TOOLS/FACILITIES	TECHNICAL MANPOWER
<ul style="list-style-type: none"> - Streamlined process of spares/material availability - Evolving better repair techniques - Time cutting - Switch from <i>specialist repair to flexible automation repair</i> 	<ul style="list-style-type: none"> - Better working environment - Better SMTs/STEs - Introduction of ATEs/diagnostic equipment/flexible automation repair techniques. 	<ul style="list-style-type: none"> - Coping with improved technology through continuous knowledge enhancement. - Time/cost cutting of skill. - Learner /agile technical work force. - Development of technical effectiveness

4.4.3 Case studies

"If we are to assess educational quality and level of training imparted by virtue of how long a student sits in a class we are focusing on the wrong end of the student".

Training, training and more training at least in the form it is understood today, is no answer to the problem of skill enhancement that is desired in the Corps of EME. This could be better understood with the help of the following case studies:

A) Case 1:

A Hav TCM (Line) with a service of 9 years of service spends approximately three and a half years in training institutes. To put this in perspective, this would be same as the total training put in by an Engineering Post Graduate or a MBBS doctor.

There is a need to analyze whether the Corps of EME can afford to train its men for such long durations. By the time the tradesmen are ready to handle the equipment, either there is new equipment already inducted/in the pipe line or the individual plans to proceed on premature retirement or his skills have decayed, as he did not get an opportunity to work on the equipment he has been trained.

B) Case 2:

The Mine Protection Vehicle (MPV), *Casspir*, imported from South Africa, was introduced in large numbers particularly in the Northern Command units in the year 1999. The EME Units which had the responsibility of maintaining these vehicles were first bewildered and then embarrassed as

no Vehicle Mechanics posted to the units holding these vehicles were trained on the repair of these vehicles.

These cases highlight the problems that the Corps is facing with regards to training its tradesmen. No organization can afford to train a technician to an extent that his availability to apply his knowledge and skills for the organization itself is under question. There is a pressing need to review the training system of the technicians in the Corps of EME. *Prima facie*, a strong case exists to reduce time spent by the technicians on upgrading courses in the training institutes.

The problem that gets highlighted in the second case would be a common scenario in the years to come. The future would routinely bring situations where new equipment, which would be ex-import in nature, would be inducted into army. The maintenance of such equipment would be the responsibility of EME. There would be situations when no expertise or technical literature would be timely available to fall back on. To take on such challenges of the future, there is a need to have a proactive training environment. Training establishments should be geared up to organize training capsule courses of short durations through the technicians who have received training on such equipment in countries from where the equipment has been procured. A pool of such technicians should be initially posted to the training institutes, till they have imparted adequate training to the EME Units holding these equipments on their maintenance load.

In case of new equipment which is of Indian Origin, the desired skills/training on their repair should be acquired from the OEM (Original Equipment Manufacturer) by the training establishment staff. This trained

team could move to the affected are, where these equipments have been inducted, to train the operators and technicians on the relevant skills. Such *on-site training* imparted would be more relevant and would involve minimum disruption in the form that mechanics having to come to the training institutes to acquire the necessary skills. It would generate a high level of interest amongst trainees and more importantly create a positive impression amongst the users of the equipment and enhance the image of the Corps of EME

4.4.4 Response of the environment

In the study, the respondents were asked to rate their level of satisfaction with the technical training. The respondents were not very satisfied with the present training. Also the standard deviation for factor *satisfaction with tech training* was found to be the highest (Table 5.1). This indicates that there exists a variation in response to the satisfaction with respect to *technical training* amongst the respondents.

Based on these findings a correlation analysis was carried out between the satisfaction with technical training and the rank structure of the respondents. The results are as shown in Table 4 3.

Table 4.3: Correlation between ranks and satisfaction with technical training

		Rank	Standard of technical training
Rank	Pearson Correlation	1	-.870
	Sig. (2-tailed)		.000
Standard of technical training	Pearson Correlation	-.870	1
	Sig. (2-tailed)	.000	

The correlation between rank structure of the respondents and satisfaction with technical training was found to be significant ($r = -.870$ at $p < 0.01$ level). The negative sign indicates that the dissatisfaction with respect to technical

training was more in the respondents of lower ranks which is due to the fact that most of the technical training courses are conducted up to the ranks of NCOs.

Table 4.4: Frequency of rank wise satisfaction with respect to technical training

Count		Standard of technical training					Total
		TOTALLY SATISFIED	SATISFIED	PARTIALLY SATISFIED	NOT SATISFIED	TOTALLY DISSATISFIED	
RANK	CFN				8	6	14
	NAIK			2	10	3	15
	HAV		1	12	3	1	17
	NBSUB		2	2			4
	SUB	6	2	1			9
	SUBMAJ	2					2
Total		8	5	17	21	10	61

At the JCOs level there are only a few courses which are mainly on junior leadership. The frequency distribution of the response is as shown in Table 4.4. The respondents were also asked to suggest methods to make the training more effective. The responses were as shown in Table 4.5.

Table 4.5: Response to making technical training more effective

RESPONSE	NUMBERS	FREQUENCY
More emphasis be given to practical training	20	32%
Trainees should be free from administrative duties	14	23%
More training on new generation equipment	17	28%
Instructors should not be assigned administrative duties	8	13%
Other responses	2	4%
TOTAL	61	100%

To make training more objective, realistic and interesting at the level of a soldier there is a need to emphasize the practical training. The theoretical training should be imparted on an 'as required' basis. For this the training institutes should be equipped with fully functional equipments and cut-models in adequate numbers to impart hands-on equipment based training. The training curriculum must match with the role expectations from the trainees. In addition to imparting training present equipment, training on emerging trends in technology and futuristic equipment, which may be reasonably expected to be inducted in the ensuing years, could also find coverage especially in some technology driven trades like telecommunication mechanic trade. This will enable trainees to absorb technology with better élan as and when such equipment is inducted. This would ensure a smooth transition from one generation equipment to the other.

The training curriculum must ensure uninterrupted and logically sequenced flow of information. A disproportionate mix of administrative jobs must be avoided at all costs. They should be provided adequate time for rest, recreation and self study. Generally it is seen that they are employed for the administrative duties associated with the training institutes. Adequate administrative staff should be posted to the training institutes to overcome this problem. Training is an important activity. All actions must be directed towards making the training more effective. The training institutes should have a motivated and specialized instructional staff. This would not only ensure high standards of training but such staff would also act as role models for the aspiring trainees to emulate. Training establishments must have a say

in the posting of instructional staff. Their suggestions / recommendations on matters related to training must be accorded a high priority. Finally training should culminate with a proper feedback to identify the weaknesses and strong points both in respect of the individuals and the training institute. Appropriate and timely corrective actions are required to be taken to overcome the shortcomings.

4.4.5 Analysis of the training requirements of the Corps

The merger of the trades with similar job content, which was discussed earlier, would only be effective if the training requirements of a merger are taken into account. The complexity and variety of the equipment in the army demands an engineering support system, which is able to address equipment in its totality rather than being dealt in piece meal. The present technical training in its existing form, though is capable of addressing a variety of equipments, it does not offer specialization on any specific one. For example, repair of an armored fighting vehicle requires a crew of eight tradesmen to repair particular equipment. In a fluid operational scenario/mobile battles of the future, where the emphasis would be on *in situ* repairs and the EME tradesmen, would have an excessive repair load. The Corps would rarely have the luxury of sparing eight tradesmen to repair equipment.

Thus there is a need to have a *systems* approach towards training which would be system/equipment specific rather than the present approach of training based on engineering disciplines. This systems approach would be dynamic enough to address the fluctuations in the technology of the equipment as well as meet the operational requirements and cadre management problems that arise from time to time.

4.4.6 Conceptual framework for training in a systems approach

Taking the above facts into consideration, the training requirements for a systems based technical training would be as follows:

The entire technical repair trades can be grouped into three basic trades namely Electronics, Electrical and Mechanical. For example, the repair trades of Armored Fighting Vehicles (AFV Mechanics) can be grouped as AFV (Mechanical) and AFV (Electronics). After the basic military training the recruits would be divided into two basic streams of Electronics and Mechanical based on their aptitude. A combined training on the fundamentals of each system is conducted for all the recruits, both Mechanical and Electronics. Thereafter the two streams are separated for training on the mechanical and electronics portion of specific equipment such as tanks, vehicles, radars, communication equipments and armaments. Training to be conducted aimed at attaining specialization on the equipment or a family of equipments.

Besides training, cadre management though planning of up-gradation courses and posting of the tradesmen will have to be coordinated to ensure optimum engineering support for the equipment. Their posting should be based on their field of specialization achieved without the rigidity of maintaining the posting profile. Posting should also be based on the type of equipment held by the unit where the individual is posted. The upgrading courses should be planned after duration of three years tenure in a unit to ensure continued association with the equipment. The planning of the courses and posting is done by the EME Records. There is a need for the EME Records to have a formal system of collecting and collating information about

the skilled inventory. Since the officers in the EME Record are not from EME, the technical requirements in terms of cadre management are not known to them. There is a need to have EME officers posted to EME Records to advise the staff at EME Records on the technical matters related to posting and planning up gradation courses for the soldiers.

4.5 Conclusion

Recruitment performs the essential function of drawing an important resource -- human capital- into the organization. In view of the changing equipment profile of the army and availability of better qualified manpower being available there is a need to make some changes in current recruitment policies. The satisfaction of the respondents with the technical training is not very high, indicating that there is a need to revamp the system of imparting technical training in the Corps. What is required is a systems approach towards training which is consistent with the trade structure of the Corps.

CHAPTER 5

SOCIO- PSYCHOLOGICAL ISSUES

5.1 Introduction

The problem of influence of society on the military organization and the vice versa has failed to attract the attention of social scientist in India. Though much has been written about war, its alleged evils, its causes and the possibility of its abolition, but the social issues related to military studies has yet not come of age in India. The reasons for this neglect lie in the dominant paradigm in military studies, which is mechanistic and technology oriented.

Military system responsible for maintenance of territorial sovereignty of the country and which aids in internal security is of paramount significance to society. Social scientists are expected to provide their inputs for the perfection of the system. Dinesh Kumar a defense analyst, during the recent Kargil crisis said, “God and soldiers are only remembered in times of crisis. The crisis being over, both are easily forgotten”(2000). With India not having fought a war since 1971, the armed forces have been neglected to insignificance by the country’s polity, bureaucracy and general public alike. Indeed, a soldier has met with sorry neglect at every stage from inadequate pay and allowances, to low social status and respect from society, poor clothing to difficult living conditions in field areas, from difficulties in providing stable education environment for their children to negligible housing support for their families. Traditionally the relationship between the

state and army was that of trust where the army got whatever it wanted. This is apparently no more the case. A common army man feels that the bureaucracy has got an upper hand and is not so sensitive to the needs of the army.

The increased complexity and importance that HRM has gained over the past few decades can be attributed to the rapid changes in the socio-economic conditions in society. These socio economic realities have made it necessary that a new look be given to the concept HRM. The armed forces have inherited rich traditions, culture and values that have banked upon unflinching loyalty and obedience from its soldiers, over the years, without questioning the authority. But the past few decades have witnessed drastic changes in the socio-economic environment coupled with technological breakthrough. These changes have far reaching implications towards the way HRM issues are being dealt presently in the army and more specifically in a Corps like EME.

Taking these issues into account an attempt has been made in this chapter to analyze some of the socio – psychological issues related to a soldier's life in the Corps of EME with the help of an interview schedule.

5.2 Literature review

5.2.1. Changing perspective of military organizations

Till recent years, army was relatively an isolated system, characterized by distinctive sub-culture, sub-structure, and distinct processes of socialization, training, values and norms of behavior (Singhvi, 1996). As a profession the role-performance in the military necessitates discipline, family de-linking and hardships that are not known in the civilian ways of life. The sub-culture of military reveals love for fun, organized entertainments as

legitimate and organized substitute for loneliness and social isolation. The military subsystem is more or less self-sufficient. Specific organized provision for food, care during sickness, and pursuits of recreation, looking after the interests of family are institutionally provided for and arranged. This is changing fast as military systems are now found to have close relationship with technological advancement, emergence of formal, bureaucratic organizations and changing norms of the society. The military systems have become global in terms of intelligence, weaponry and internationalization of local issues. The new technologies would reduce the number of soldiers in army as more and more computer generated strategies shall be used in combat and intelligence. The pressures of population explosion and falling job opportunities will shape the geo-politics of emerging high-tech global system in coming years.

In a democratic set up like in our country, the system is required to be non-political. Despite significant differentiations and diversities in terms of social background (ethnicity, religion and culture), the structural attributes of military create homogenizing effect.

5.2.2 Military: Institution or Occupation

A paradigm shift in the armed forces of the western countries is being observed; where in armies are moving from an organizational format that was predominantly *institutional* to the one that is becoming more and more *occupational* (Moskos, 1988). These differences are summarized in Table 5.1. In the institutional military, service is viewed as a call of duty and is *legitimized* by normative social values; in the occupational military, service is viewed as a job and legitimized by the dynamics of labor market. The

recruitment appeals of institutional military focus on character and life style (e.g., The Brave, the Commandos, Pride in defending the nation), while the recruiting appeals of the occupational military focus on pay and skill training (“it’s a good place to start”).

Table 5.1: Military organizations:– Institution or Occupation

<i>Variables</i>	<i>Institutional</i>	<i>Occupational</i>
<i>Legitimacy</i>	Normative Values	Market Place economy
<i>Recruitment appeals</i>	Character qualities; change of life style	High recruit, technical training
<i>Compensation basis</i>	Rank and seniority	Market condition
<i>Compensation mode</i>	In kind, deferred	Salary and bonuses
<i>Role Commitment</i>	Diffuse, generalist	Specific, specialist
<i>Reference groups</i>	Within military	Within Occupation
<i>Women's in army</i>	Restricted/Limited	Open
<i>Spouses' role in army</i>	Part of community	Separated from work

Compensation in the institutional military is ‘in kind’ (food, clothing, medical) or deferred (veteran’s benefit), while in occupational military it is reflected directly in salary and bonuses where veterans get no special treatment. *Compensation differences* in institutional military are determined by rank and seniority. In occupational military they reflect market conditions for people with particular skills and aptitude. The basis of *public esteem* in institutional military is the service rendered, while the esteem of the occupational military, like that of the other jobs in the labor force, is rooted in the compensation earned. The *role commitment* of personnel in institutional military is diffused and is generalist in nature. As soldiers, they are can be called upon to do a variety of jobs. The role commitment of personnel in the occupational

military is specific. They resent being asked to undertake tasks outside of their specific military occupational or trades. The *reference groups* of personnel in institutional military are within the service they identify with other soldiers. Personnel in occupational military, by contrast, identify with other workers in the same trade, whether or not they are in military.

The institutional armies were traditionally masculine where women were not accepted in a profession like army. The new occupational military model is more sensitive to gender integration, with women's entry being encouraged in the army. Spouses of military personnel are incorporated into the institutional military while the occupational military separates work and family. The residential pattern in institutional military had place of work and residence co-located and the service involved frequent family relocation. In occupational military the personnel want work and residence to be co-located but they want service to be more stabilized geographically (less frequent moves).

Israel appears to be the most institutional of the military forces with the Israeli defense forces being value-driven, with clear mission and military roles defined in diffuse and general terms (Gal, 1986).

In the past the British military was also institutional where recruitment appeals have been value-driven, emphasizing self sacrifice. However in the recent past British forces have partially adopted pay comparability with civilian occupations and offered special pay to technicians, thus admitting the dynamics of the labor market into military personnel equation (Downes, 1986).

The French have tried to maintain an institutional military, with the least technical branch i.e. the army, which is the most institutional and the most technical branch. The air force, is the most occupational. Though there have been clear tendencies towards occupational direction, with personnel living off base, and resenting military interference in their private and family lives (Boene, 1986). Similarly in the US army competitive salaries had been introduced to recruit technicians, larger number of officers being sent to civil universities, spouses are increasingly entering the civilian labor force and promotions are based on performance rather than based on rank and seniority.

5.2.3 Organizational changes

Major organizational changes are occurring in post cold war military organizations (Segal, 1988). First there is an increasing inter penetrability of civilian and military spheres, reflected not only in the privatization and outsourcing of military support functions, but in the legitimating of entrepreneurial military operations as well. For example, Executive Outcomes, a South African firm, offers to train soldiers for governments with in effective armed forces. They lead troops, fly combat missions against rebels and outlaws with striking success in Angola, Seirra Leone and New Guinea. Second, is the change in the purpose of military, from a focus on fighting wars to missions that were at best secondary, such as humanitarian assistance.

5.2.4 Phases of the post World War II armies

Haries – Jenkins, 1996, classifies the post World War II armies into three phases as shown in Table 5.2. In the early cold war period, preceding the evolution of nuclear arms race, nations perceiving threats to their security

were supportive of both armed forces and high military expenditures. Increasing demands for technical specialization and growing unpopularity of military conscription led to shift from mass armies to large standing forces in a deterrence posture.

Table 5.2: Phases of Post World War-II Armies

Variable	Early Cold War	Late Cold War	Post-Cold War
<i>Structure</i>	Mass army	Large Professional army	Smaller Professional army / reserves
<i>Threat</i>	Invasion	Nuclear War	Sub-national/non military
<i>Public opinion</i>	Supportive	Ambivalent	Skeptical
<i>Dominant Issue</i>	Security	Culture conflicts	Economic growth
<i>Defense Budget</i>	Supported	Tolerated	Resisted
<i>Identification</i>	Institutional	Occupational	Civic
<i>Professional Role</i>	Warrior	Technician/ Manager	Statesman

These were manned by soldiers who saw themselves as professionals rather than warriors or by short term volunteers both of whom identified increasingly with the broader labor force rather than military. The public did not become more negative towards the military but the military did become less salient in the public consciousness and increasing criticism was directed at defense expenditures as real economic growth declined. The armed forces today, have to compete increasingly with other societal priorities. These priorities have to do with governmental expenditures on political market, the recruitment of personnel on the labor market and legitimacy in society as a whole. The times

when the armed forces were provided with virtually unlimited financial and personnel resources is gone, perhaps forever.

The world today is changing at an unprecedented pace. These changes affect the way people perceive and value things in life.

5.3 Social and professional milieu of the respondents

In any organization, the technical and job related aspects are related to the human and social aspects. Hutcheson and Mc Donald (1997) have identified six critical factors that go into making a choice of a career - interests, values, expectations, skills, experience and social background. This relationship has implications for HRM. Hence it is important to have an overview of the demographic characteristics of the respondents.

In the schedule the respondents were asked to give details of their background characteristics such as age, education qualification, rank, urban/rural background, social and economic status and the type of family. The interview schedule is shown in Appendix-A. Fig. 5.1 and Table 5.3 shows the percentage *age distribution* of the respondents.

Table 5.3: Age distribution of the respondents

		Frequency	Percent
Age Group(Years)	Less than 25	3	4.9
	25-30	12	19.7
	30-35	11	18.0
	35-40	19	31.1
	40-45	15	24.6
	45-50	1	1.6
	Total	61	100.0

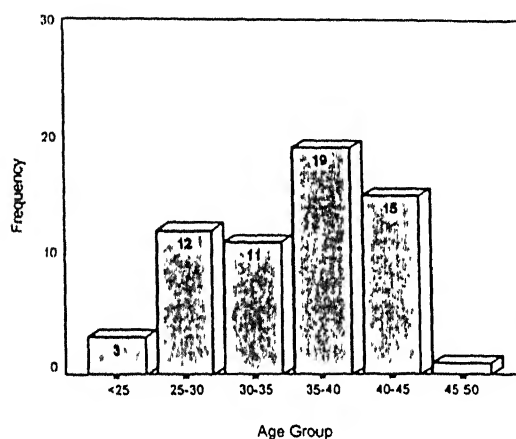


Fig 5.1: Age Distribution of the Respondents

An attempt was made to have a homogeneous mix of respondents from all the age and rank group. As there were no basic courses being run at the time when the survey was carried out at MCME so only 5% of the respondents less than 25 years of age could be included in the survey. Also there are no courses being run for individuals in the age group above 45 years. Except for these two age groups - less than 25 years and above 45 years, a proportionate number of respondents from all age group and rank were included in the survey.

There are 6 rank categories in the Corps – Craftsman (Cfn), Naik (Nk), Havildar (Hav), Naib Subedar (Nb Sub), Subedar (Sub) and Subedar Major (Sub Maj). Out of these Cfn, Nk & Hav are known as non commissioned officers (NCOs) while Nb Sub, Sub and Sub Maj are known as junior commissioned officers (JCOs). The rank categories of JCOs are at the supervisory level. Table 5.4 and Fig. 5.2 shows the rank profile of the respondents.

Table 5.4: Rank structure of the respondents

		Frequency	Percent
Rank	CFN	14	23.0
	NAIK	15	24.6
	HAV	17	27.9
	NBSUB	4	6.6
	SUB	9	14.8
	SUBMAJ	2	3.3
	Total	61	100.0

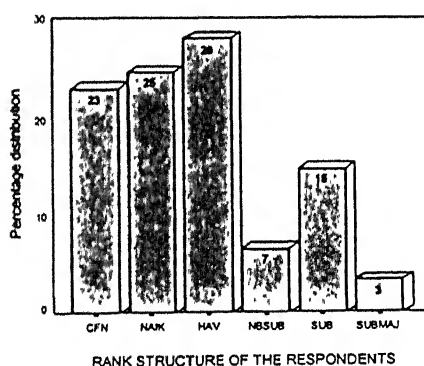


Fig 5.2: Rank structure of the respondents

Table 5.5 shows the percentage distribution of the *education standard* of the respondents. 10% of the respondents had education qualification less than class tenth. They were from the administrative trade categories like Mess

Waiters, Barbers and Masalchis. The non-matriculate entries in the case of jawans were stopped in 1996. The minimum qualification for administrative trades since then is matric and for other technical trades it is higher secondary in EME. As can be seen from the figure, a majority of the respondents 54% (33) had higher secondary as their education qualification. While 13% (8) of them had done diploma, 8% (5) were graduates, out of which 3 had completed their graduation after joining the army through correspondence. A majority of the youth join the army after attaining the minimum education qualification which is merely tenth and higher secondary for non technical and technical arms respectively. Except for the army there is hardly any organization today that offers a job for as less education qualification as tenth pass. This affects the quality of the individuals joining the army, particularly a technical Corps like EME.

Table 5.5.: Education qualification of the respondents

		Frequency	Percent
Education qualification	Less than tenth	6	9.8
	TENTH	9	14.8
	HR SEC	33	54.1
	DIPLOMA	8	13.1
	GRADUATE	5	8.2
	Total	61	100.0

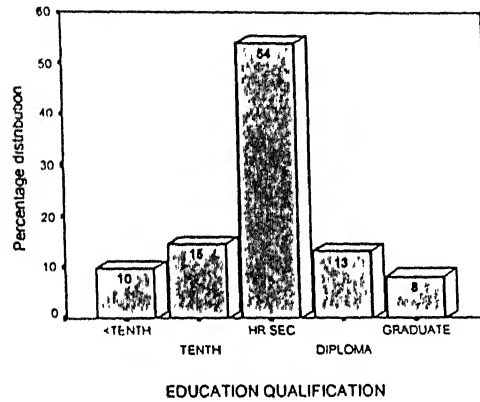


Fig 5.3.: Education qualification

Fig. 5.4 shows that still a majority of the respondents (67%) opting for a career in army come from the *rural background*. Their first exposure to technology is the pressure cooker or a sewing machine they take home on leave from army canteens. Such individuals do not have an instinctive feel or empathy for the sophisticated equipment that they are required to maintain/handle. This is as truer for the EME as it is for the entire Indian Army. The only difference is that for rest of the army, this empathy is desirable, while for the Corps of EME it is the bread and butter. Further the problems of a soldier from rural background revolve around their agricultural land. Their linkages with their land and villages are disrupted due to long period of absences from their native place leading to their getting involved in litigations / property disputes. This also affects their work performance.

Table 5.6: Family background

		Frequency	Percent
Background	URBAN	20	32.8
	RURAL	41	67.2
	Total	61	100.0

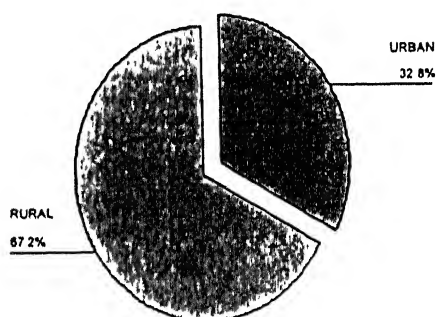


Fig 5.4: Family back ground

The lack of appeal of army as a career amongst the youth from the urban areas can be related to the rapid industrialization and better education that has created better job avenues.

In response to the perceived *social status* in the society (Fig. 5.5) 67% (41) of the respondents considered themselves from lower class, 23% (14) considered themselves from middle class and only 10% (6) of the balance said that they belonged to upper class family. Out of these 6 from upper class families, 4 had ancestral agricultural property and all came from a joint family.

Table 5.7: Perceived status in the society

	Frequency	Percent
Lower class	41	67.2
Middle class	14	23.0
Upper class	6	9.8
Total	61	100.0

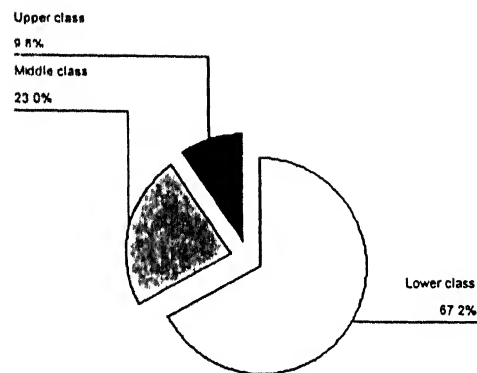


Fig 5.5: Perceived Social status

A majority of the respondents (77%) have no additional source of income other than the salary. Those having an additional source of income came from a strong agricultural background. The economic and the social status of the respondents reveals that for a majority who came from a lower class with no additional source of income are more likely to view army as an occupation and would attach more importance to materialistic goals in life.

Table 5.8: Distribution of respondents by additional source of income

	Frequency	Percent
No	47	77.0
Yes	14	23.0
Total	61	100.0

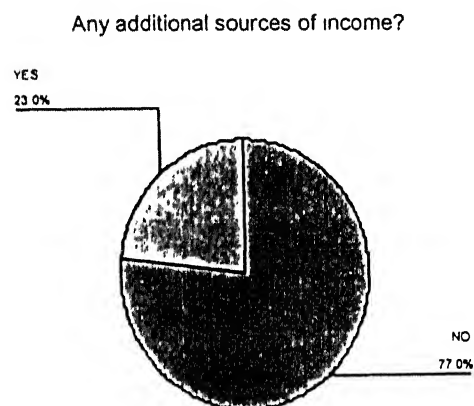


Fig 5.6: Additional source of income

The disintegration of the old concept of joint family is evident as there is an increase in number of nuclear families. Table 5.9 shows that 56% (34) of the respondents come from a nuclear family as compared to 44% (27) from joint families.

Table 5.9: Distribution of the respondents by type of family (Joint / Nuclear)

	Frequency	Percent
JOINT	27	44.3
NUCLEAR	34	55.7
Total	61	100.0

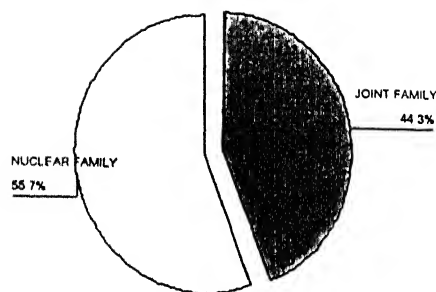


Fig 5.7: Type of family of the respondents

The primary reasons for existence of joint family system in our society were an agricultural economy which required people to cultivate the lands. Illiteracy also contributed to some extent to the joint family system

5.4 Desirable attributes related to army life

Behling, Labovitz and Gainer (1986) in their study have identified *objective* and *subjective* factors related to decision made by an individual while making a career choice. The *objective* factors perspective assumes that the job choice decisions are based on weighing the advantages/disadvantages of objectively measurable job attributes such as pay, working conditions and the nature of work. Whereas the subjective factors perspective assumes that the choice is based on perceived congruence between the individual and the organization with respect to subjective assessment of his needs and values.

Based on these guidelines a schedule was prepared to assess the importance given by the respondents to some of the attributes related to army life, while making the decision of joining the army. This included a battery of questions that were aimed at evaluating the attractiveness and importance given to the objective and subjective factors and to make an assessment of

individual's physiological needs and importance given to values, on a Likert scale from 1 to 5 (where 1 signified -most important attribute and 5 the least important as per the individual.) The mean scores and standard deviation for each of the factors are shown in Table 5.10. Some of the interesting observations made from the responses are:-

The factor '*service to the nation*' was ranked highest by all the respondents, while *involvement in decision making* was ranked lowest .Surprisingly the factor *salary & other benefits* was ranked second lowest, though in the questions related to '*Job satisfaction*', score for the factor satisfaction *with salary* was the lowest. The reason for this difference can be best explained by the study conducted by Schwab, and Rynes (1987). In this study, the respondents were asked to rank the importance given to 10 job attributes in terms of their own preference, and what they perceived would be the preference of others. The research revealed that *pay* was ranked in middle of the 10 attributes when expressing their own preferences but the individuals felt that others would rank *pay* significantly higher than they themselves did This bias in preferences was attributed to individuals' reluctance in expressing their true desires for high pay for fear of appearing overly materialistic. The respondents gave more importance to the factor *job security* over better *promotional avenues*.

Table 5.10: Response towards preference of desirable attributes related to army life

	Minimum#	Maximum#	Mean	Std Deviation
Service to the nation	1	3	1.84	.711
Job security	1	4	2.00	.775
Moral values	1	3	2.02	.719
Job fulfillment	1	5	2.05	.964
Quality of life	1	4	2.18	.725
Salary & perks	1	4	2.23	1.007
Working conditions	1	4	2.31	.867
Obligations towards family	1	4	2.31	.827
Career prospects	1	4	2.33	1.028
Discipline in army	1	5	2.72	1.051
Image of army	1	5	2.89	1.212
Involvement in decision making	1	5	3.15	.997
AVERAGE			2.34	.91

1 signifies most important and 5 the least important attribute as per the respondents

A low ranking for the factor *image of army* can be attributed to the fact that in today's environment, the armed forces has to compete increasingly with other societal priorities. These priorities involve government expenditures and should have legitimacy in the society as a whole. The gap between the basic values amongst the general public and the defense personnel is widening. It is because of this widening gap that the old institution of the armed forces is loosing its importance amongst the general public and fails to attract the best of the youth to join the armed forces. Higher level of education has also resulted to improved job opportunities elsewhere. Army now is low in priority amongst the job seekers. This is supported by the fact that there is a staggering shortfall of around one third of the sanctioned strength in the officer cadre alone of the three services. The reason for this is that today a

career in the armed forces is being compared with any other occupation in civil, where people want their jobs to be less hazardous, with minimum disturbances in family life and education of the children. Traditional motives of joining the army (e.g. family traditions to have many generations or at least one member from the family serving in the army) and ideological motives (duty, honor and country) have lost their overarching impact in today's life. Instead, youth of today go for money and adhere to the ethical principles that are based on equality of rights and freedom of expression. Those who cannot find a good job in civil are the ones opting to joining the army which has also affected the quality of intake into the armed forces today.

A correlation analysis was carried out to find if choice of the attributes was related to any of the demographic characteristics of the respondents. Table 5.11 shows that *rank* of the respondents was negatively correlated to *image of army, discipline in army and moral values*, implying the respondents from the higher rank categories gave more importance to normative attributes. While for factors like *career prospects, quality of life and better working conditions* the correlation with *rank* was positive, implying that respondents from the lower ranks gave more importance to these attributes.

As per Rynes et al. (1983) the importance of an attribute is likely to be dependent on its variability. Factors with little variability, although inherently important, receive less weight in job choice decisions than those with high variability.

Table 5.11: Correlation between rank, image of army, importance of discipline, moral values, working conditions, career prospects and quality of life

	RANK	
	Pearson Correlation	Sig. (2-tailed)
Image of army	-.834	.000
Discipline in army	-.803	.000
Moral values	-.676	.059
Working conditions	.475	.000
Career prospects	.784	.000
Quality of life	.612	.027

A high value of variation for factors like *discipline in army*, *quality of life*, *image of army*, *better working conditions*, *high moral standards* and *better promotion avenues* can be explained by the fact that while individuals from higher rank categories (Hav and JCOs) gave more importance to factors like *image of army* (52%), *discipline in army* (64%) and *high moral standards* (73%); the individuals from the lower rank categories like Cfn & Nk gave higher ranking to factors like *better working conditions* (56%), *better quality of life* (67%) & *better promotional avenues*(52%). This implies the younger generation joining the Corps view career in the army as a job as legitimized by the dynamics of the civil labor market while the older generation view army as an institution where more importance is attached to normative values.

The preference of the younger generation for attributes like better promotion avenues, good working conditions and quality of life is also an indicator of the changing trend towards an occupational format of the army.

Table 5.12: Distribution of the respondents by importance to career prospects and rank

Count		Career prospects				Total
		MOST IMP	IMP	PARTIALLY IMP	NOT IMP	
RANK	CFN	10	4			14
	NAIK	7	8			15
	HAV		3	11	3	17
	NBSUB			2	2	4
	SUB			8	1	9
	SUBMAJ				2	2
Total		17	15	21	8	61

Table 5.12 shows that while 29(52 %) of the respondents from the lower ranks (Cfn and Nk) gave high importance to *career prospects*, only 3(5%) of the respondents from the rank of Hav and JCOs considered *career prospects* as an important attribute related to their job. Table 5.13 illustrates that while 36 % of respondents from the ranks of Hav and JCOs considered discipline as an important attribute related to army life, only 11% from the ranks of Cfn and Nk considered it to be important. Despite a significant difference and diversities in terms of ethnicity, religion and culture, the structural attributes of army creates a homogenizing effect through enforcement of discipline. *Discipline in army* was also rated low as a desirable attribute by the respondents, especially those from the lower ranks.

Table 5.13: Distribution of the respondents by importance to discipline and rank

Count		Discipline in army					Total
		MOST IMP	IMP	PARTIALLY IMP	NOT IMP	NOT AT ALL IMP	
RANK	CFN			5	9		14
	NAIK		1	9	5		15
	HAV	1	6	9		1	17
	NBSUB	1	3				4
	SUB	6	3				9
	SUBMAJ	2					2
Total		10	13	23	14	1	61

A soldier today is far more alive and alert to his surroundings, his work, his rights and privileges. He tries to analyze various orders and instructions given to him. Blind obedience to orders is a matter of past. It is consequently become more difficult to enforce the old concept of discipline. The survey also indicated 56% of respondents mainly in the lower ranks feel that there is far too much of emphasis being given on discipline. Though there has been no change in the way discipline was insured over the years, still as can be seen from Table 5.14 below, the cases of indiscipline and desertion have been increasing over the years.

Thus there is a need to address the issue of enforcing discipline in a different way where a man has not only to be dealt along a physical but also at intellectual plane. A certain amount of discretionary power and autonomy in their work would help in resolving the problem of increasing cases of indiscipline in the army.

Table 5.14: Wastages over the years due to desertion and indiscipline in the Corps

YEAR	DISCIPLINE	DESERTIONS
1989	6	6
1990	9	8
1991	12	5
1992	25	27
1993	21	6
1994	12	3
1995	43	27
1996	173	176
1997	278	124
1998	435	135
1999	211	140
2000	156	65

Table 5.15: Distribution of the respondents by importance to working condition and rank

Count		Working conditions				Total
		MOST IMP	IMP	PARTIALLY IMP	NOT IMP	
RANK	CFN	2	11	1		14
	NAIK	6	6	2	1	15
	HAV	3	4	8	2	17
	NBSUB		3	1		4
	SUB		1	6	2	9
	SUBMAJ			2		2
Total		11	25	20	5	61

The factor *better working conditions* were given importance by 41% of respondents from the rank of Cfn and Nk as compared to 18% of the respondents from the ranks of Hav and JCOs.

5.5 Social Comparison

As per the equity theory, proposed by Adams (1961), employees make comparisons of their *job inputs*, i.e. efforts, working conditions, competence and the *job outcomes*, i.e. salary, compensations, recognition and status;

relative to those of the others. Employees compare themselves with co-workers, colleagues in other organizations and friends. The *outcome-input ratio* (O/I) of an employee when compared to the *outcome-input ratio* of the others, may lead to three situations:-

Ratio Comparison #	Perception
$(O/I)_A < (O/I)_B$	Inequity due to under reward
$(O/I)_A = (O/I)_B$	Equity exists
$(O/I)_A > (O/I)_B$	Inequity due to over reward

$(O/I)_A$ = for employee

$(O/I)_B$ = for others with whom comparison is made

When the employee perceives his *outcome –input* ratio to be equal to others with whom he compares himself, a state of equity results. When the employee's equity ratio is less than compared to others, it leads to equity tension, which would be a de-motivating factor for the employee. Based on the individual's perception of the inequity, he may make one of the following choices:-

- (a) Change his inputs (i.e. may or may not exert extra efforts)
- (b) Have a distorted perception of own self (e.g. though life is tough in army compared to life in civil organizations, still soldiers are not looked after well).
- (c) Have distorted perception about others (e.g. civilians have a well settled life)
- (d) Decide to leave the job, in search of a better job.

In army the reference groups to whom people relate themselves are within the organization. They identify / compare themselves with other soldiers. This is because of the peculiarities of the army nature of job in army that is generally not seen in civil jobs. But in a technical Corps like EME, a tradesman like a telecommunication mechanic, a carpenter or a vehicle mechanic can identify himself with other workers in civil besides those in the army. This comparison with civilians is more likely to result in creating an inequity due to under reward when he compares himself to a civilian; thus effecting his performance and level of job satisfaction.

The respondents were asked to rate as to how they compared themselves with their counterparts in civil organizations. They were asked to rate some statements which were in favor army in comparison to their civilian counterparts; on a scale from 1 to 5. For example one of the statements made was *"A soldier's job is more secured than a civilian's job"*. In the rating, 1 signified that they totally agreed to the statement and 5 signified they were in total disagreement to the statement in favor of the army. The analysis of data on comparison with the civilians (Table 5.16) shows that the respondents were in general partially satisfied in terms of being better off than their civilian counterparts.

Table 5.16: Response to comparison with civilian counterparts

	Minimum#	Maximum#	Mean	Std. Deviation
Perks & privileges are better	1	4	1.85	.679
Family interests are better looked after	1	4	2.08	.802
Job is more secured in army	1	5	2.18	.958
More pride in army job	1	5	2.26	.893
Life is more meaningful in army	1	4	2.80	.853
Better retired life	2	5	3.33	.747
Better social status in army	1	5	3.38	.860
Growth opportunities are better in army	1	5	3.41	.955
Risks are better compensated in army	1	5	3.59	.901
Pay is better	2	5	3.61	.842
Will be better settled after 10 years	2	5	3.84	.840
OVERALL MEAN			2.93	.84

1 signifies totally agree and 5 signifies totally disagree, in favor of army

They rated themselves better off than them for factors like *job security, family interests being well looked after, pride associated with the job in army and perks & privileges*. This is mainly attributed to the existing institutional organizational format of the Indian Army, where the compensations are mainly in kind (in terms of canteen and medical facilities, clothing, food and travel concessions while proceeding on leave). Army personnel regard themselves as being different /apart from the broader society. Being a member of an organization like army as per them is congruent with notions of self sacrifice in the service of the nation which instills lot of pride in their work.

Rest of the factors like *looking after the families interests, risk compensation, promotion avenues in army, salary and a better settled retired life* were rated low by the respondents, thus indicating that they felt their civilian counterparts were better off than them in terms of these aspects. *Poor salary & lack of promotion avenues* were also cited as the most important reason for individuals opting for premature retirement.

Spread of literacy has made a soldier more aware and he compares the perks and privileges not only with his counter parts in other paramilitary organizations like police, BSF but also with his civilian counterparts. Salary of the soldiers is below the prevalent market wages of the civilians. The notion of overtime pay is alien in an institution like army. On the other hand, a liability of 24 hours service, fixed terms of enlistment, early retirement age, frequent moves of self and families, subjection to strict military discipline and law, inability to resign, strike or negotiate working conditions are some of the factors peculiar to the army. In addition to this, unlike many civil compensation systems where performance determines rewards and promotions, remuneration in army is essentially based on rank and seniority, while promotions are vacancy based. All these factors make a soldier feel that in totality his civilian counterpart is better off than him.

While comparing themselves with their colleagues of other trades in the Corps of EME, the tradesmen of trade category *vehicle mechanics, drivers, barbers, and washer men* felt that promotion in their trades were slower than trades like *armourer, refrigerator mechanic, tailor and equipment repairer*.

Fig 5.8 and Fig 5.9 give trade wise details of the promotion prospects for promotion from the rank of Nk to Hav. While a Nk from the trade categories like- *carpenter, painter, tailor, refrigerator mechanic, armourer, engineering equipment mechanic* becomes a Hav within eight years of service; a Nk from trade categories like *metal smith, upholster, driver, vehicle mechanic, electrician, gun fitter* and some other trades (as shown in the figure) take more than 10 years to be promoted to the same rank. This disparity in promotion opportunities in different trade categories, in spite of meeting the qualification criteria for the next rank, in the form of requisite technical qualification for the next rank, was sited as the worst aspect of army life by 43% of the respondents. They said that they did not like taking orders from those junior to them in service but get promoted to a higher rank than them, because of better promotion prospect in their trade.

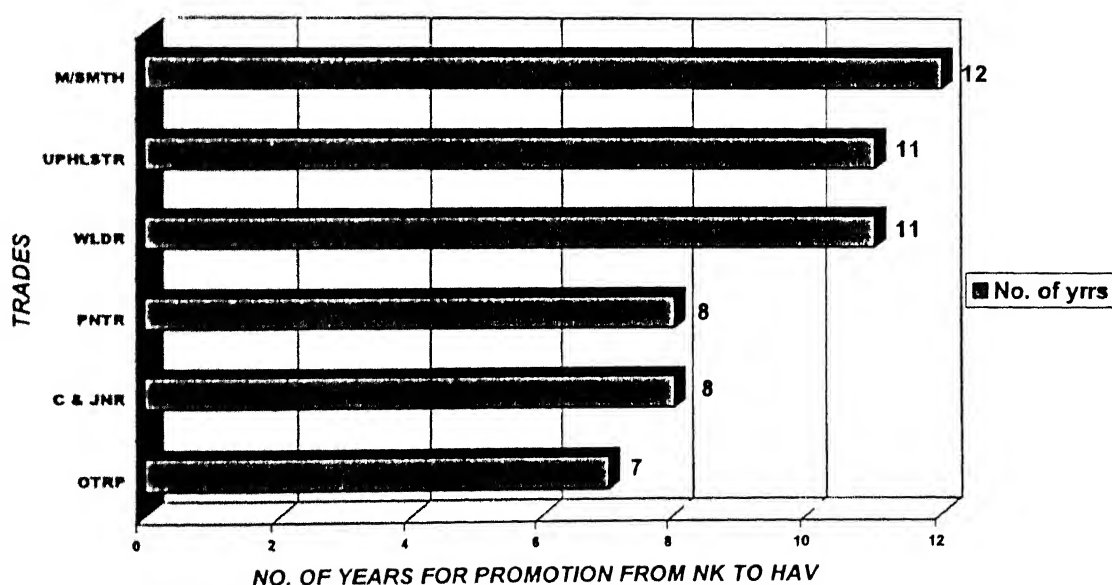


Fig 5.8: Promotion prospects: ancillary trades (Nk to Hav)

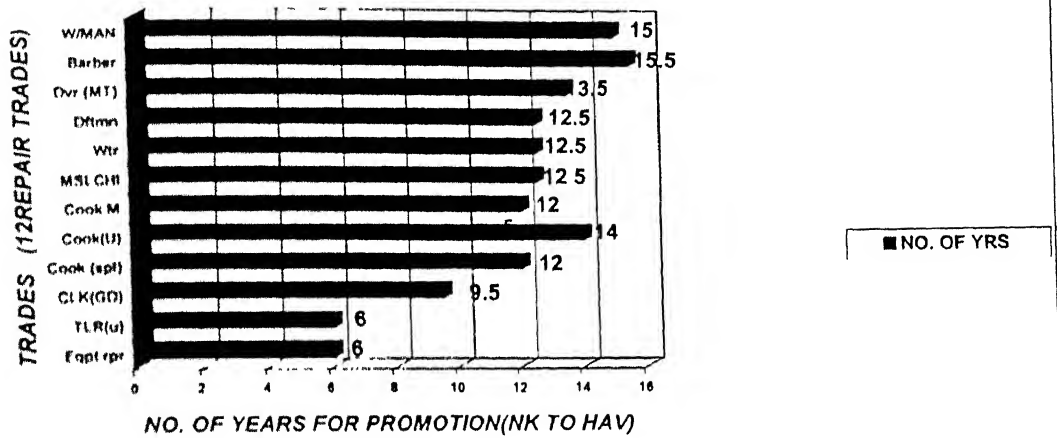


Fig 5.9: Promotion prospects: Administrative trades

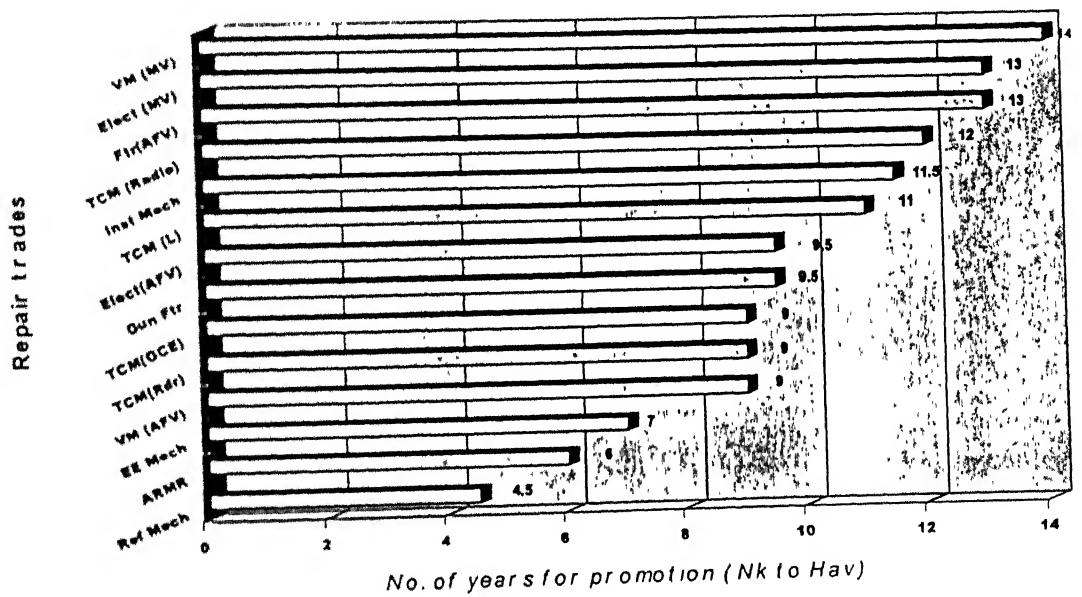


Fig 5.10: Promotion prospects: Repair trades (Nk to Hav)

5.6 Job Satisfaction

Conceptually job satisfaction is defined as an individual's attitude towards his job. It is a complex summation of a number of discrete job elements. In simple terms it can be said to be the difference between the amount of rewards workers receive and the amount they believe they should actually receive.

Research conducted by Institute of Work Psychology at Sheffield University (1977) reveals that job satisfaction influences individual's performance, which in turn is related to the organization's productivity. The results of study were measured as percentage variation in performance attributable to job satisfaction. The study revealed that job satisfaction explained 14% of variation between companies in terms of profitability and productivity. Also organizations with more satisfied employees tend to be more effective than organization with less satisfied employees (Spector, 1977). In the study, job satisfaction has also been found to be negatively related to turnover. Job satisfaction is a major determinant of an employee's organization citizenship behavior. A more satisfied employee would go beyond the call of his duty when required because he wants to reciprocate the positive experience that he gets from the organization. This is an attribute that is so desirable in organizations like army, where the organization may have to demand ultimate sacrifice in terms of the lives of the individuals. The next issue is: what determines the level of job satisfaction? Initially, some researchers believed that material rewards determine job satisfaction. But now the agreement in the social scientific community is that non-material rewards, such as praise or recognition and organization culture are the major factors in

satisfaction. As per Herzberg's Two Factor theory, the factors that make people more satisfied are embedded in the content of the job, whereas the factors that make them feel dissatisfied are related to the context of the job. Thus managers who seek to eliminate factors leading to job dissatisfaction may bring about peace but not necessarily make the job satisfying. The conditions surrounding the job such as administrative policies, salary, status, and job security were characterized by Herzberg as *hygiene factors*. When they are adequate, people will not be dissatisfied; neither will they be satisfied. If people have to be motivated on their jobs, Herzberg suggested emphasizing factors associated with the work itself or the outcomes directly derived from it, such as opportunities for personal growth, recognition, job enrichment and job redesign, responsibilities and achievements which he termed as *motivators*.

To evaluate the job satisfaction levels, key factors related to army job were identified and the respondents were asked to give their response about their level of satisfaction with respect to each of these factors. These key factors include satisfaction with respect to *salary, perks, training, working conditions and fairness of promotion, postings and performance appraisals, etc.* (Appendix 'A'). The respondents were asked to rate their level of satisfaction with respect to each factor on a scale of 1 to 5 (1-totally satisfied and 5-totally dissatisfied). A low value of mean score indicates a high level of job satisfaction. The average score and the standard deviation for each factor are shown in Table 5.13.

The overall score for job satisfaction of the respondents in Table 5.13 reveals that the respondents were partially satisfied with their jobs. The satisfaction level with respect to factors like- *job security perks and privileges,*

fairness of performance appraisal, standard of military training was relatively higher. The respondents were generally not satisfied with respect to factors like- *education facilities for children, standard of technical training, salary, preparedness of the Corps to meet the future challenges and ability to attend to family problems*. The wage-price spiral is soaring skywards while the economy of the nation is going through a critical phase. Soaring prices, decline of purchasing power and exponential increase in the cost of living index makes a soldier feel dissatisfied with his salary especially when he compares himself with his civilian counterparts. Dissolution of joint family system has resulted in increased number of troops seeking family accommodations in peace stations for longer duration. Good education of the children is an important concern for them which they can only fulfill when posted to a peace station. Hence the requests for more frequent posting to stations where they get an opportunity to stay with their families and provide good education for their children are on the rise and have become an important hygiene factor towards his motivation. While being posted in field/operational areas they seek separate family accommodations in a metropolis closest to the field station they are posted, more than ever before, lack of which adds to his dissatisfaction in being able to fulfill his family obligations.

The factor *'preparedness of the Corps to meet the challenges of the future'* scored the lowest implying that the respondents were not very confident of their technical skills for providing an effective engineering support. The respondents were asked to give their views about ways of improving the operational and technical preparedness of the Corps in the subjective questionnaire.

Table 5.17: Mean and Standard deviation for factors affecting Job Satisfaction

	Minimum #	Maximum #	Mean	Std. Deviation
Job security	1	3	1.72	.581
Standard of military training	1	4	2.02	.695
Satisfaction Perks & privileges	1	4	2.05	.693
Fairness of Performance appraisal system	1	4	2.13	.785
Health	1	4	2.16	.688
Opportunities for self development	1	4	2.30	.782
Fairness in Postings	1	5	2.36	.895
Fairness in Promotions	2	5	2.74	.794
Support & guidance from peers	1	4	2.77	.761
Satisfaction - Postings	1	5	2.80	.946
Compensation for family dislocation	1	4	2.87	.741
Satisfaction Safety	1	4	2.89	.755
Post retirement settlement	1	5	2.98	.957
Job Fulfillment	1	5	3.20	1.093
Expectation - Reality match	1	5	3.31	1.133
Education facility of children	2	5	3.31	.765
Standard of technical training	1	5	3.33	1.235
Attending to family obligations	1	5	3.41	.920
Training infrastructure	1	5	3.52	.808
Satisfaction- Salary	2	5	3.56	.904
Preparedness of the Corps to meet the challenges of the future	2	5	3.92	.737
OVERALL MEAN			2.82	.84

* # 1 signifies totally satisfied and 5 signifies totally dissatisfied

A majority (45%) felt that there was a need to review the existing trade structure of the Corps while others (23%) felt there was a need to reevaluate the existing training being imparted at the training centers. Thus implying there is an urgent need to improve organization effectiveness by analyzing the training requirements of the Corps to meet the challenges of the future

High scores towards the factors –*expectation reality match* and *job fulfillment*, reveals that most of the respondents did not find army job as perceived by them before joining and their degree of fulfillment leaves much to be desired. Being a citizen of a socialist democratic country, a soldier expects a lot more from the state that he did before, without realizing what dues he has to contribute from his side for the state. Due to his better level of education and awareness, he has a hazy concept of 'democracy' which does not link responsibility with privileges. The importance given to moral and ethical values is fast changing giving way to increased materialistic norms in life. Proliferation of mass communication media, mainly satellite television and flooding of market with consumer goods has played an important role in this. This has resulted in increased materialistic desires and consequently increased level of dissatisfaction of today's soldier which arises out of attitude of not being able to "keep up with Jones". Aspiration to possess what others have is on the increase. Luxury items have now become essentials. This coupled with faster pace of life; influence of urbanization and more permissiveness of the society have resulted in increase of stress levels of the soldiers leading to psychological disorders.

Today when a soldier compares himself to his counterparts in the civil organizations, he may find them leading a more peaceful and settled life after fulfilling most of their social obligations while they are still serving. He observes that an ex-serviceman who after his retirement at an early age of less than 40 years, are still struggling with children's education, are yet to construct a house or to get their daughters married. This is seriously going to affect the quality of intake into the armed forces. As per a survey conducted in

1998, the armed forces are ranked at the bottom as a career choice amongst the youth today, Saksena (1998).

A further analysis of *expectation reality match and job fulfillment* was carried out to determine their correlation with the rank structure of the respondents. The results of the correlation test are shown in the table 5.18 below:-

Table 5.18: Correlation between Rank, Job fulfillment and 'Expectation -Reality' match

		RANK	Job Fulfillment	Expectation - Reality match
RANK	Pearson Correlation	1	-.771	-.614
	Sig. (2-tailed)	.	.000	.000
Job Fulfillment	Pearson Correlation	-.771	1	.596
	Sig. (2-tailed)	.000	.	.000
Expectation - Reality match	Pearson Correlation	-.614	.596	1
	Sig. (2-tailed)	.000	.000	.

The correlation of Rank structure with Job fulfillment ($r = -.771$) and 'Expectation Reality match' ($r = -.614$) was found to be negative and significant at the 0.01 level (2-tailed). The negative sign in the correlation indicates that the dissatisfaction level is more in the lower ranks compared to the higher ranks (NCO's and JCOs). The correlation between the two factors 'Job fulfillment' and 'Expectancy Reality match' was also found to be significant ($p < .01$ & $r = .596$); indicating that individuals found their job more fulfilling if their expectations from the job were being met.

More than half of the respondents (58%) indicate that they have some unmet expectations in the subjective questionnaire as shown in Table 5.19.

Table 5.19: Distribution of the respondents according to whether their expectations are met

Expectations met or not	Numbers	Percentage
Completely as expected	5	8%
Mostly as expected	21	34%
Hardly as expected	31	51%
Not all as expected	4	7%
Total	61	100%

Out of all the factors, the standard deviation for factor *satisfaction with technical training* was found to be the highest. This indicates that the respondents differed most with respect to *technical training*. This is apparently because most of the technical training courses being run are for the individuals up to the rank of Hav. Thus the respondents from these ranks are in a better position to comment on the training being imparted to them.

Based on these findings a correlation analysis was carried out between the satisfaction with technical training and the rank structure of the respondents. The results are as shown in Table 5.20. The correlation was found to be significant ($r = -.870$ at $p < 0.01$ level).

Table 5.20: Correlation between Ranks, Satisfaction with technical training

		RANK	Standard of technical training
RANK	Pearson Correlation	1	-.870
	Sig. (2-tailed)	.	.000
Standard of technical training	Pearson Correlation	-.870	1
	Sig. (2-tailed)	.000	.

The negative sign indicates that the dissatisfaction with respect to technical training was more in the respondents of lower ranks which is illustrated in Table 5.21.

Table 5.21: Frequency distribution of the respondents by rank and satisfaction with respect to technical training.

Count		Standard of technical training					Total
		TOTALLY SATISFIED	SATISFIED	PARTIALLY SATISFIED	NOT SATISFIED	TOTALLY DISSATISFIED	
RANK	CFN				8	6	14
	NAIK			2	10	3	15
	HAV		1	12	3	1	17
	NBSUB		2	2			4
	SUB	6	2	1			9
	SUBMAJ	2					2
Total		8	5	17	21	10	61

Though the respondents are more or less satisfied with the *fairness of the promotion system* in the Corps, *lack of promotion* was found to be one of the most important reasons for individuals opting for premature retirement (53%). This apparently can be attributed to the pyramidal rank structure of the defense organizations.

As mentioned above, people feel satisfied with their jobs when they appreciate the *intrinsic nature of work* and the opportunities it provides them in *revealing their professional competencies*. This fact is supported in the study too where the factors *job fulfillment* (related to the *nature of work*) and *opportunities for self development* (opportunity to *reveal one's professional competencies*) scored low. The lower ratings for these two factors therefore should imply that in this particular study, people would in general not be very satisfied with their jobs, which was found to be true from the overall score of job satisfaction of the individuals which was 2.82 indicating that the individuals were only partially satisfied.

5.7 Job related stress

The popularity of stress as a research topic amongst behavioral scientists and practitioners may be attributed to the undesirable effects which stress may lead to. Stress is a mental and physical condition, which affects individual's productivity, effectiveness, personal health and quality of work. Job stress victims experience lower quality of work life and less job satisfaction from their jobs. Stress has been suggested to be linked to physical and mental health (Cobb, 1976 and Quick 1979) and to job dissatisfaction (Johnson & Stinson, 1985). Stress due to role overload and resource inadequacy has also been found to be significantly related to turnover (Gupta & Beehr, 1979).

Stress can be viewed as individual's reaction to the characteristics of work environment, in which either excessive demands are made on individuals or they are not fully equipped to handle a particular work situation (French, 1983). Organizational factors play an important part in creating job stress. Individuals with different levels of organizational commitment may view stress differently (Cooper and Pyne, 1978). For organizationally committed individuals, high job stress may not be perceived by them as enough reason for not performing at a reasonable level of performance. On the other hand individuals with low organizational commitment to start with, have only a limited loyalty towards the organization. In face of adverse situations, these feelings may even be further reduced and the individual may put the blame on the organization for this adversity. At empirical level, organizational commitment has been found to be inversely related to turnover (Angel and Perry, 1981).

A simple diagram (Fig. 5.11) below illustrates stress as constraining force acting on a person, who attempts to cope up with this force. In the process, he exerts/strains himself and perhaps feels fatigued and distressed.

An individual experiencing stress puts pressure on his team as well as the organization. A group experiencing stress puts pressure on individual members, in turn puts pressure on individuals as well as groups. Thus stress is transmitted at all levels in an organization. The stress chain reaction is illustrated in Fig. 5.12. A part of the study attempted to find out important job related stressors amongst the respondents. The questions in the survey were aimed at measuring the prevalent levels of stress amongst the individual on a scale from 1 to 5 (1-signifying most important stressor and 5-least important stressor).

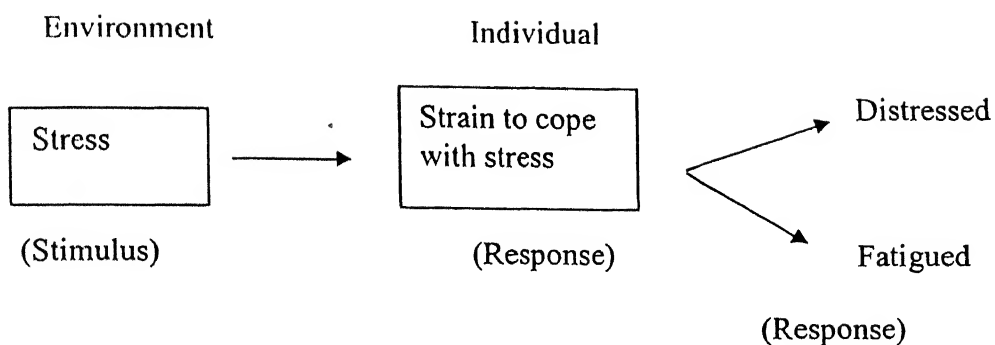


Fig. 5.11: Individual's response to stress

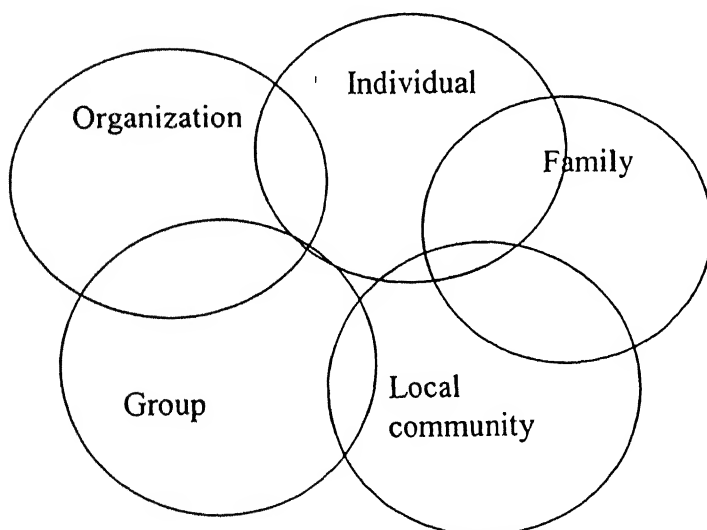


Fig. 5.12: Stress Chain Reaction

The job stressors that were assessed include stress due to *posting to field units, prolonged deployment in field units, imbalance between job commitments & family obligations, fear of injury and death, etc.* (Appendix-A). The mean

scores for each of the stressors and the standard deviation are as shown in Table 5.22. The respondents felt that factors such as *leave not being granted when desired, zero defect syndrome and overload of work* were the main contributors towards job related stress. Interestingly *fear of injury or death* scored lowest as a stressor. The overall stress score indicates that the stress levels amongst the respondents was high.

Table 5.22: Mean and standard deviation for factors contributing to stress

	Minimum	Maximum	Mean	Std Deviation
Leave not granted when desired	1	4	1.75	.728
Over load of work	1	4	1.90	.804
Zero defect syndrome	1	5	1.92	1.176
Imbalance between demands of job & family obligations	1	5	2.20	.959
Stress due to feild posting	1	5	2.23	.887
Concern for family when posted to feild	1	5	2.46	.994
Prolonged deployment in feild units	1	4	2.51	.827
Lack of facilities-Tools/ Test equipment / Spares	1	4	2.57	.741
Social isolation	1	4	2.74	.929
Lack of training on equipment	1	5	2.80	1.014
Fear of injury/ death	1	5	3.61	.971
OVERALL MEAN		4.54	2.42	.91

1 signifies most important stressor and 5 signifies least important stressor

Fig. 5.13 shows that over 20 (32%) individuals had an overall stress score in between 15-25 (low overall stress score indicates more stress) whereas around 13 (21%) individuals had an overall stress score in the 25-35 group. Comparatively only 15(24%) individuals had a high score of more than 35-45.

This indicates that only 24% individuals had relatively lower stress than compared to 56% individual that had a high level of job related stress.

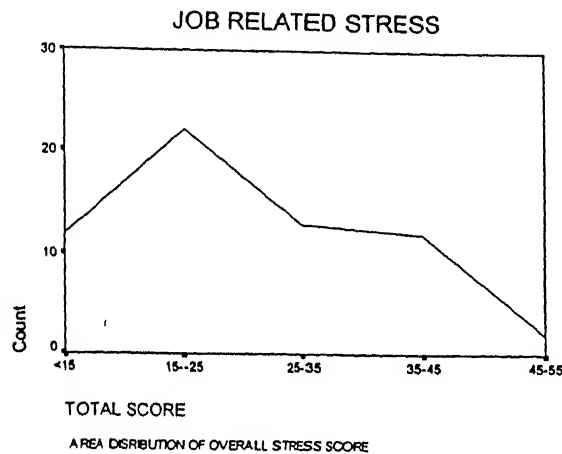


Fig 5.13: Graph showing frequency distribution of the average job related stress scores (Lesser score indicates higher level of stress)

A correlation analysis was carried out to test if there is a relationship between the stress levels experienced by the individuals and the age group to which the individual belonged to. The results of the test are as shown in Table 5.23.

Table 5.23: Correlation between age group, total stress score

		Age Group	Total Stress score
Age Group	Pearson Correlation	1	-.867
	Sig. (2-tailed)	.	.000
Total Stress score	Pearson Correlation	-.867	1
	Sig. (2-tailed)	.000	.

As seen from the results the correlation was found to be significant ($r = -.867$, $p < .01$). The negative sign in the correlation indicates that for the individuals in the higher age group bracket their stress scores are less. (A low stress score indicates higher level of stress). Further the results in Table 5.23 indicate that the *age group* of the respondents was found to be significantly related to stress

due to *imbalance between the demands of the job and family obligations* ($r = -.664$), *zero defect syndrome* ($r = -.859$) and *overload of work* ($r = -.598$) at $p < .01$. The negative sign in the relation indicates that the stress score reduces as the age group increases. (A low value of stress score indicates higher level of stress). Increase of stress because of work overload in the higher age group can be attributed to the fact that as an individual moves higher in rank (with age) the job responsibilities increase. The study thus supports the fact that family obligations and job commitment are a high source of stress especially in higher age groups. This is probably because the family obligations get overshadowed by the job requirements which bring in added job responsibilities. The *increase in work overload* as expected was found to be related to *imbalance between the job demands & family obligations* ($r = .724$).

Table 5.24: Correlation between age group, zero defect syndrome, imbalance between family and job obligations, work overload.

		Age Group	Zero defect syndrome	Imbalance between demands of job & family obligations	Over load of work
Age Group	Pearson Correlation	1	-.859	-.664	-.598
	Sig. (2-tailed)		.000	.000	.000
Zero defect syndrome	Pearson Correlation	-.859	1	.796	.660
	Sig. (2-tailed)	.000	.	.000	.000
Imbalance- job & family obligations	Pearson Correlation	-.664	.796	1	.724
	Sig. (2-tailed)	.000	.000	.	.000
Over load of work	Pearson Correlation	-.598	.660	.724	1
	Sig. (2-tailed)	.000	.000	.000	.

Table 5.24 shows that up to the age group of 30-35 years none of the respondents felt much stress due to the fact that they are given no scope for error in their jobs. Above the age group 35-40 years 34 respondents (55%) felt that they were stressed by the fact that no mistakes were expected from the jobs assigned to them. This to some extent can explain the relatively higher

value of standard deviation (2.71) in response to stress due to zero defect syndromes in Table 5.22. Fig 5.14 gives the frequency distribution of the respondents as per their level of stress due to zero defect expectations from their job.

Table 5.25: Frequency distribution of the respondents by age group and stress due to Zero defect syndrome

Age group	Zero defect syndrome					Total
	Most imp stressor	Imp stressor	Partially imp stressor	Least imp stressor	Not a stressor	
Less than 25				1		3
25-30			3	8	1	12
30-35			8	5		11
35-40	7	11	1			19
40-45	9	6				15
45-50	1					1
Total	17	17	12	14	1	61

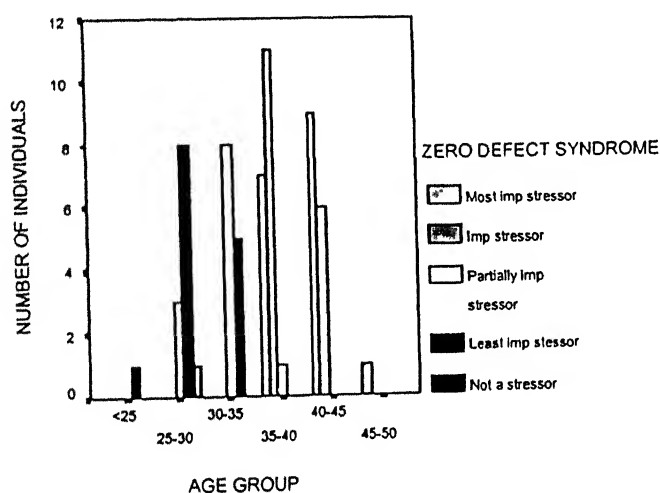


Fig 5.14: Age group versus Stress due to Zero defect syndrome

The type of family an individual came from (joint / nuclear family) was found to have an effect on the stress levels of the respondents. It was seen that stress due to factors like - *field postings* ($r = -.862$), *concern for family when posted to non family stations* ($r = -.785$) and *not getting leave when desired* ($r = -.769$) was significant at $p < .01$; in case of individuals coming from nuclear families. (Table 5.26) The results also indicate that the *concern for family* was more

when individuals were posted to field units ($r = .689, p < .01$) and the individuals faced more problems in getting leave when posted to field units ($r = .743, p < .01$)

Table 5.26: Correlation between type of family, stress due to field posting, concern for family and Leave not granted when desired

		Stress due to field postings	Type of family	Concern for family when posted to field unit	Leave not granted when desired
Stress due to field postings	Pearson Correlation	1	-.862	.689	.743
	Sig. (2-tailed)		.000	.000	.000
Type of family	Pearson Correlation	-.862	1	-.785	-.769
	Sig. (2-tailed)	.000		.000	.000
Concern for family when posted to field unit	Pearson Correlation	.689	-.785	1	.426
	Sig. (2-tailed)	.000	.000		.000
Leave not granted when desired	Pearson Correlation	.743	-.769	.426	1
	Sig. (2-tailed)	.000	.000	.000	

With the breakup of the joint families, the security that a joint family system provided to a soldier, by looking after the requirements of his family interests, is no longer available to him. Earlier the joint families took care of the concern for their families. As a result only few families joined a soldier even in peace stations. Increase in nuclear families has led to an increase in requests for accommodation by a soldier at his duty station, due to his increased domestic problems. Non availability of accommodation and has become a source of constant worry and stress for today's soldier. Another important consequence that the disintegration of the joint families has led to is the division of ancestral properties amongst the growing nuclear families. Disputes related to property are becoming common amongst the soldiers today. Due to their long periods of absence from their native place, they find themselves at a disadvantage to pursue their legal cases. Restrictions of leave due to the

The financial causes of stress for a soldier could be due to social comparison that he makes with the civilians or due to his materialistic outlook. A feeling of inequity due to being under rewarded on comparison to a civilian may lead to stress and also to under performance by the individual. Proliferation of the mass communication media, particularly the satellite channels and flooding of the market with consumer goods has heightened the materialistic desires of a soldier. Inadequate finances do not permit fulfillment of these desires and may contribute to stress. Besides, unless a soldier gets promoted to the rank of a JCO, he is forced to retire at an early age while his responsibilities are high. His inability to get a job after retirement to sustain his family also causes stress.

A soldier today feels that the Corps needs to do a lot more by looking after the interests of their family when he is posted to field areas. Concern for families when posted to field areas has become an important cause of stress for a soldier today. The unit commanders not only have to look after the interests of a soldier but also to an increasing degree, the welfare of his family.

5.8. Conclusion

The study shows that values and job expectations of the individuals change with work experience, rank and maturity. The results also support the findings of Zedeck (1977) wherein, the older and more experienced place more importance to moral values and factors contributing to job fulfillment while the younger and the less experienced attached more importance to pay. However, the use of direct estimation of importance given to an attribute during the conduct of this study may not be explicitly linked to the final decision that go in for choice of a job. There may be many other factors that

ultimately influence the job choice decision. Thus it can only be said that the most preferred attribute will have an important impact on choice of a job and the expectations that an individual may have from his job.

The demographic characteristics of the respondent reveals that in an era where the equipment complexity is increasing still a majority of the individuals joining the technical Corps like EME are higher secondary qualified. This is in spite the fact that education standards have improved. The Corps will have to take steps to improve its quality of intake to meet the technological challenges foreseen in the days to come. The harmful consequences of stress both for the individual and the organization highlight the need for strategies to limit stressors within an organization. The job stressors assessed in the present study are of the nature which will be affected mainly through the action of the management, therefore there is a need to invest time and effort to discover how the stress levels of individuals can be brought down through proper man management. The changing socio - economic environments in which the Corps has to function today coupled with increase in employee's aspirations dictates the need for a more efficient handling of employees through an effective HRM policy.

In order to make the armed forces a lucrative career amongst the youth there is an urgent need to address the issues related to their pays and allowances, their status in the society, providing a stable education environment for their children's education and addressing issues related to better housing facilities in the peace stations.

CHAPTER 6

SUMMARY AND FINDINGS

6.1 Introduction

This chapter summarizes the study. The study shows that attitude and opinion surveys can be a critical tool in providing feedback on how the soldiers are adapting to the changing environment around them. Unfortunately, in Indian Army, surveys have not been used to get feedback which is very vital for taking policy decisions. There is a need to conduct surveys which would act as a “finger on the pulse” of soldiers, and help in monitoring issues related to morale, motivation, training needs, assessment of well being and operational preparedness/readiness of the Corps. The chapter discusses the important findings of the study followed by the limitations of the study, and the scope for future studies.

6.2 Need for a HRM doctrine in the Corps

The Corps of EME constitutes fairly large percentage (10%) of the strength of the Indian Army. Presently no formal written doctrine/policy exists in the Corps to manage such a large work force. There is a need for a policy on various issues covering the different stages of a soldier's career in the Corps i.e. recruitment stage, in-service stage. Needless to say, this policy requires revision from time to time.

6.3 Issues related to recruitment

Keeping in view the current state of unemployment amongst the youth, resulting in higher level of competition amongst candidates seeking a job, it should actually result in recruits to be much above the minimum criteria laid down, thus raising the intake quality level rather high. Unfortunately it does not appear to be so. The demographic characteristics of the respondents reveal that still a majority of the individuals joining a technology driven Corps like EME have their civil education qualification as higher secondary or even less. As per the training staff at MCEME, the quality of recruits joining the Corps through the BROs / ZROs is not up to the mark because these recruiting offices do not take into consideration the technical requirements of EME. This problem can be overcome by having representatives of the Corps of EME, who understand the requirements of the Corps better for recruitment through these offices. Also the present quota of recruitment that is allotted to Corps can be enhanced from the present 25%. To level out the discrepancy in the varying educational standards in different states, it would be appropriate to have a pre-induction training for duration of six months or a year after recruitment to bring every one at par.

The state wise quota for release of recruitment can be replaced by a common entrance exam for recruitment on merit basis from all over India. The eligibility criteria and qualitative requirement for recruits joining the technical Corp like EME, needs to be reviewed and should be commensurate with the knowledge and skill levels required for understanding the technology, sophistication and complexity of the equipment they are to maintain. There is also a need to utilize the vast pool of ITI trained personnel available. Their

prior exposure to practical and theoretical aspects of technology would not only lead to better intake quality but would also help in reduction of the training period. The education qualification for intake especially into technology driven trades like Telecommunication and Aviation Engineering may be increased to Diploma/BSC from the existing 10+2 level.

The role of the Corps of EME, the opportunities it provides for enhancement of engineering knowledge and adventure sports are little known outside the armed forces. There is a need to have a well thought-out and creative advertising campaign, using professional help. This campaign should be simple and in regional languages aimed at attracting better population. A poor recruitment policy besides leading to mediocrity also causes increase in turnover.

6.4 Trade allotment procedures

In the Corps of EME, the various technical trades include three disciplines, mechanical, electrical or electronics. Hence while allotting the trades, after recruitment; aptitude for these disciplines needs to be considered. Further all the technical trades should evolve after acquiring the basic skills in the above-mentioned categories. There is a need to adopt a *competency based approach* for trade allotment in the Corps. Besides this, after the trade allotment all the tradesmen should be kept on probation for a specified period of time so that re-allotment of trades can be carried out whenever the tradesmen are found wanting. The system should be flexible to accept such out of turn request made by the unit commanders, after conducting the aptitude tests for the recommended trade.

6.5 Merging of trades

Review of the existing trade structure of the Corps reveals that the trade categories in the Corps have not been revised ever since the inception of the Corps in 1952, though the equipment profile of the army has undergone a substantive change ever since. Also the improved availability of civil infrastructure even in some of the remote places where the army operates would help in reducing the manpower in certain trade categories if not deleting these trades from the Corps. The new range of equipment is multidisciplinary in design which makes some of the trades redundant or duplicating the job content of the others.

Further, if a solution has to be found from within the Corps to the problem of downsizing, whereby the Corps will have to shed approximately 15,500 personnel, merging of trades with similar job content and deletion of the redundant trades has to be taken into consideration. TCM (L) and TCM(R) have similar content and they may be considered for merger. Similarly VM (MV) and Rec Mech, Welder and Metal Smith, Dvr (MT) and Dvr(Spl Veh), and Refrig Mech and Elect trades may also be merged. Some of the low tech trades that can be considered for reduction in terms of the manpower / deletion from the Corps in view of the available expertise outside are- Tailor, Painter and Decorator, Carpenter and Joiner, Upholster, Molder and Equipment Repairer. This would be able to create better promotion avenues by reducing the disparity of promotion prospects in different trade categories as seen in the study.

However merging/deletion of the suggested trades will have to be analyzed in the light of technical diversity of the equipment and re-evaluation

of the technical training needs. There is a caveat here. Merging of trades would increase the job content of the tradesmen and hence it needs to be balanced with adequate strength for that particular trade. The deletion of suggested trades should not compromise the organizational effectiveness of the Corps. Though the improved civil infrastructure can be utilized to the optimum, during war the likely response of civil environment needs to be kept in sight while deciding about repose on civil infrastructure.

6.6 Military training

A jawan in the Corps of EME is a 'craftsman soldier'. The soldiering part is catered for by the military training imparted to him, while his technical capabilities are improved through the technical training. In the study the respondents in the higher ranks were quite satisfied with both the military and technical training. Those in the lower ranks (Cfn and Nk) felt that the technical training was not satisfactory. Presently the Corps has the dual responsibility of providing both the military as well as the technical training. If the task of imparting military training can be taken over by the Infantry training centers which are more professional in it, the Corps can intensify resources on technical training.

6.7 Technical training

In the technical training the respondents wanted more emphasis be placed on practical aspects. In particular, at the lower levels more emphasis is needed on developing diagnostic skills, as diagnostics are the fundamentals to repair of any equipment, which is the main task of the Corps. Theory has to be taught of course but more emphasis has to be placed on practical, equipment

based and job oriented training. The use of computer based tutorials (CBT) and training aids, like cut models should be encouraged.

The fear of not giving a trainee a chance to work on equipment because he might spoil it demotivates him and he would shy away from the equipment later if he is not confident of handling it.

There is also a need to review the existing syllabi. Contemporary subjects/equipment is to be included and trainees need to be exposed to emerging/future technological trends. Since the technology changes are occurring very fast, the training curriculum may have to be revised every two to three years.

Training should respond to the dynamic needs of the environment. Emphasis should be on meeting the actual requirement for maintenance and repair of contemporary battle field equipment.

Training on newly inducted equipment should be organized taking the help of Original Equipment Manufacturer (OEM.) For the *low population high tech equipment*, the training establishments should acquire the necessary skills from the OEM. This trained team could then move to the affected areas that have the particular equipment to be maintained, to impart *on the site training* to the other tradesmen of the Corps.

Re-employment of good instructors in training institutions after their retirement can be considered. Also guest faculty should be invited from recognized institutes and equipment manufacturing firms for imparting practical training in the training institutes like MCEME. Training grants can be utilized for imparting specialized training to instructors in manufacturer's premises.

A panel of potential/existing instructors should be maintained by the training centers and EME Records should post them to these training centers without being too rigid on maintaining the sector profile¹ for posting of such individuals.

A disproportionate mix of technical and administrative duties must be avoided so that the trainees get adequate opportunity for rest, recreation and self study. Adequate separate administrative staff should be available at the training centers, to insulate indulgence of the training staff in administrative duties, however small/trivial.

The armed forces are at present short of 2,137 officers. In the Corps also there is an acute shortage of officers especially in the lower ranks of Captain and Lieutenants. Hence there is need felt where soldiers at appropriate stages in their career, must be imparted structured/institutionalized training to groom them into effective supervisors and junior leaders. They should be made to shoulder higher responsibilities in administration and technical functioning at unit level. Besides job enrichment it would also contribute to their job satisfaction levels. They should be adequately compensated for these added responsibilities through 'officiating allowances'. The 'Zero Defect Syndrome' which is high amongst the senior NCOs and JCOs, restrains them to go by the books. Failures in performance to a certain extent will have to be accepted to avoid curbing of creativity and innovation which are so desirable in a technical Corps like EME.

¹ A soldier has to do tenure in each of the five sectors where army is deployed in rotation, before he can be reconsidered for a posting to any other sector

Training should culminate through proper feedback so as to identify weaknesses and strong points, both with respect to the individuals and training establishments. Appropriate corrective action must be taken on feedback received.

6.8 Organizational Culture

The role of the Corps of EME is clear and unambiguous. The reputation and long term survival of the Corps will not be dictated by our expertise in managing/running institutes like CSD canteens, Army schools, and welfare organizations. These are not important enough to usurp the primary area of effectiveness of the Corps. For this the onus lies on the officer cadre of the Corps who are the repository of organizational values and culture. They should recognize this and re-orient the efforts accordingly. There should be no ambiguity in the *stated* and *demonstrated* Key Result Areas (KRAs) of the Corps.

6.9 Postings

The EME Records office should build up a database of the skill levels of technicians specially those trained in imported technology and ensure that postings of such individuals are carried to the units holding imported equipment. Further the postings of individuals should have 'hearts' and not a mere bureaucratic approach. The postings of individuals should be based on their skill and equipment exposure. The present system of posting based on rigidity of maintaining a sector profile has to be discarded, especially for personnel trained on high technical and low profile equipment.

6.10 Impact of socio-economic changes

The socio-economic changes in society will make the task of management more complex and requires to be handled more carefully. Some of the ways to combat these challenges are:

- a) Having a more intimate officer- soldier relationship to understand the problems of the troops. The officer cadre needs to be more alert, responsive and should maintain contact with men at all levels. Increase in grievances in form of anonymous letters, petitions and court cases can be reduced by making functioning more transparent, fairer and cleaner. It is seen that at the moment so much time is being spent in dealing with disciplinary cases. This has to be reduced.
- b) There is a need for maintaining close liaison with the civil administrative bodies through the Formation HQs of the army units and Zila Sainik Boards to expedite various litigation and police cases of the soldiers in the court of law.
- c) With the disintegration of joint families, more soldiers require accommodation at the duty station. Scales of family accommodation are not satisfactory, and availability does not match even the meager authorized scales. Though the government has sanctioned construction of houses for 14% of soldiers, only 8% are so far constructed. CILQ is not commensurate with rental of civil hired accommodation, which is also not available in most cantonments. The rental ceiling of a jawan ranges between Rs.500 for metropolitan class 'A' city

to a paltry Rs. 230 for 'C' grade cities which is not keeping with the actual rents prevailing in civil areas close to cantonments.

- d) Breakdown of joint families has left a void in the psychology of a soldier today, where he wants to belong to someone. Units where a soldier is serving can help in filling this void, by creating an environment in which he develops the sense of belongingness. Contemporary social scientists attach a great importance to identity. A strong identification with unit is expected to improve soldier's quality of army life as well as quality of life. This would also contribute to his motivation levels.

6.11 Post- Retirement Settlement

A majority of the personnel in the Corps retire before the age of 40 years, unlike other government jobs where the retirement age is 58-62 years. This early retirement age can be attributed to the hierarchical rank structure of the Indian Army and also the need to maintain a youthful profile of the defense forces. At each service rank the rejection is as high as 50%. This early age of retirement is also the time when family responsibilities are the maximum. They are out of job when their children are still studying, daughters are yet to be married and various other social responsibilities are to be performed. As a result a majority of these retiring individuals would wish to go in for a second career option. Retirement also creates a new situation for an individual to interact with other members in society with a new perspective and social meaning. This interaction in a new situation may lead to new

problems for them. Keeping these factors in view, there is a need to explore the possibilities of generation of a second career option for these personnel who are willing to go in for it.

A soldier leaving the Corps after retirement should be made to feel to be an integral part of the Corps. Generally it is seen that the individuals on the verge of retirement request for a choice *last- leg- posting* to their home states, to sort out administrative problems regarding their post retirement settlement and taking up another job after retirement. A sincere effort to post the individual to a place of his choice immediately prior to his retirement would help him to prepare himself to enter the civil life. The organizational obligations of the Corps can only be considered met, when they are suitably rehabilitated after retirement. For close monitoring of availability of suitable vacancies in the civil sector, there is a need to have a 'Corps Placement Cell' as a central coordinating agency, located at EME Depot Battalion, where the individuals proceeding on retirement report for their final documentation. Such a cell should have knowledgeable staff with initiative, drive and a good public relation profile.

Apart from seeking rehabilitation of the retirees in defense PSUs like DRDO and private sector industries, the Corps should give a serious thought to seeking lateral induction of this skilled and experienced manpower into paramilitary forces, Central police organizations and in selected areas within the Corps. Army base workshops, station workshop, training establishments and regional institutes of the Corps are the ideal agencies where retiring individuals can be re-employed. Such a step will not only ease out the problem

of rehabilitation but also benefit the Corps in a big way by recycling the skills imparted by the Corps to these individuals rather than letting them go waste.

6.12 Job related stress

The study supports findings of Cooper and Payne (1978) where in organizational factors play an important role in creating job-related stress. The effect of work overload which was found to be significant amongst the respondents can be minimized by enhancing employee's organizational commitment. Individuals with different levels of organizational commitment may view stress differently. Moreover high job stress may not be perceived by organizationally committed individuals as enough reasons for not performing at reasonable level of performance.

The overall stress levels of the respondents were found to be positively related to age. This may be because job responsibilities and family obligations increase with age. Most of the stressors identified in the study were found to be within the control of management. Thus there is a need to invest time and effort on the part of the management in identifying these stressors and minimizing the stress levels.

6.13 Manpower planning in the Corps

In the study, the present manpower planning process in the Corps was analyzed in details through interaction with the various agencies like the EME Records office at Secunderabad and Director EME (Personnel) at the EME Directorate at Army HQs, New Delhi. Important policy letters issued from higher HQs in relation to manpower planning were studied. The relevant data pertaining to issues like recruitment, wastages due to various reasons, trade structure, authorization and holding of manpower in various trades, was

collected and analyzed to understand the problems faced by the Corps. Some of the important issues identified, that need immediate attention are:

- a) The recruitment pattern has peaks and troughs implying the recruitment is not evenly spread out over the years.
- b) The Corps will have to downsize its force levels by 13,500 by the year 2006. As per the contract in the army an individual, once enrolled, continues to serve for a period of 20 years. This reduction will have to be brought about in a phased manner without compromising on the technical efficiency of the Corps.
- c) The holding of manpower in the various ranks is not as per authorization. While the manpower is surplus in the rank of Cfn and Sub, it is below the authorization in the ranks of Hav, Nk and Nb Sub. The overall manpower of the Corps is surplus by 2,386 (2.6%) from its authorized strength. The critical deficiencies/surpluses are in the rank category of NCOs who constitute 90% of the entire strength of the Corps.
- d) Forecasting of future recruitment requirements, promotions and attrition are still being handled by intuition, experience and certain rules of thumb which lead to error prone forecasting.
- e) With the prevalent manpower planning practices, the wastages likely to accrue in the period 2007-08 to 2010-11 would be approximately 19,000 personnel, which is going to have an adverse effect on the Corps of EME due to the sudden exodus of skilled manpower, specially at the supervisory level.

- f) The present system of manpower planning in the Corps is found to be static in nature that cannot cater for dynamic organizational needs of the future.

Keeping these issues in mind there is a need felt to adopt a mathematical model for manpower planning that would help in overcoming the present problems of human resource planning in the Corps. The manpower planning models available were studied. The model based on *Markov's stochastic process* is the one that suits the organizational structure of the armed forces. It would be the most appropriate one to be adopted by the Corps of EME. As all the relevant data needed to implement the model was not available due to the information being classified in nature, the model could not be implemented. The same would be done after the researcher joins his duty.

6.14 Limitations of the study

At the end of the study it is important to point out the limitations of the study and suggest the scope the study has for future research. As the study relates to a defense organization, and has been carried out at an academic institute, the researcher could not get access to all the relevant data required for the conduct of the study. Particularly the manpower planning model that has been suggested required some data that could not be made available because of the information being classified in nature. The author has been required to evolve method for HRM that will be used later for an in-side study when he goes back to his job in the unit.

6.15 Problems for future research

The scope of human resource management as a study subject is vast. Hence it would be more worthwhile to carry out an in-depth analysis of a

selected aspect of human resource. One of the subjects relevant to the study could be assessing the factors that influence organizational commitment of the individuals in the armed forces. Another interesting subject could be to study how the decision of a career choice in army and the circumstances under which an individual makes such a decision influence the post-hire consequences like organizational commitment, satisfaction and turnover. One of the recommendations of the present study is that for studying the above issues an objective method has to be combined with qualitative methods. Army personnel are usually suspicious of revealing anything during formal interviews. They reveal better in informal and unstructured interviews.

6.16 Conclusion

The multi-pronged onslaught being faced by the Corps of EME, by way of increased equipment proliferation, mind boggling technological explosion, sharply dwindling resources in terms of skilled manpower and stifling pressures to downsize, can only be thwarted if the Corps takes bold and decisive steps now. In the years to come, manpower in the Corps would shrink distressingly while the myriad tasks to be performed will continue to swell unabated. The response of the environment reveals that the Indian Army like the armies of the western countries is moving from an organizational format that was predominantly *institutional* to the one that is becoming more and more *occupational*. The only redemption for the Corps lies in earnestly addressing its HRM needs. Because it is through effective HRM alone that the Corps can develop into an effective and dynamic organization, ready to meet the challenges of the future. There is a need for the policy makers to stop thinking linearly since the current technological and socio-economic

environment are changing in a non- linear fashion and would continue to do so in the future.

The concept of Human Resource Management is not new to the armed forces. The armed forces have inherited rich traditions, culture and values that have banked upon unflinching loyalty and obedience from its soldiers, over the years, without questioning the authority. But the past few decades have witnessed drastic changes in the socio-economic environment coupled with technological break- through. Army in general and EME in particular being a technical Corps and a microcosm of our society cannot help being influenced by these changes. These changes have far reaching implications towards the way HRM issues are being dealt presently in the army and more specifically in a Corps like EME. If the distance between general public and military values is allowed to become too large, the armed forces would lose its reputation as an institution of major importance.

REFERENCES

1. Adams, J.S. (1965), "Injustice in Social Exchange", *Advances in Experimental Psychology*, Vol. 2, Academic Press, New York.
2. Angel, M. and Perry, S. (1981), "Improving organizational commitment", *Journal of Applied Psychology*, 35(5), pp.307-311.
3. Argyris, C. (1993), *"On Organizational Learning"*, Blackwell, Cambridge, Mass.
4. Bartholomew, D.J. (1979), *Statistical Techniques for Manpower Planning*, John Wiley and Sons, New York.
5. Behling, O., Labovitz, G and Gainer, M. (1986). "Measuring Job Attributes", *Personnel Management*, 39, pp 239-246.
6. Boudrean, J.W. and Rynes S.L.; "Role of Recruitment in Staffing", *Journal of Applied Psychology*, 70, pp 354-366.
7. Cascio, W.F. and Awad, E.M. (1987), "Management practices for the 21st century", *Academy of Management review*, 24, pp. 535-542.
8. Cobb, S. (1976), "Social support as moderator of life stresses". *Journal of Social Issues*, 19(4), pp 39-56.
9. Cooper, C. and Pyne R. (1978), "Stress at work", *Academy of Management Journal*, 1978, 17, 28-36.
10. Frantzreb, R.B. (1981), "HRP: Forecasting manpower needs". *Personnel Journal*, 60, pp 850-857.
11. Gal, R. (1986), *The Military in Development of New Nations*. Chicago: University of Chicago Press.
12. Gatewood, R.D. (1983), "The use of expert data in human resource planning: Guidelines from strategic planning", *Human Resource planning*, G, 2, pp. 83-93.
13. Green, C.R. and Jackson D.L. (1989), "Human Resource Planning in Changing environment", *A Handbook of HRM Practices*, Kogan Page Limited, London.
14. Grinold, R.C. and Marshal, K.T. (1977), *Manpower planning models*, Elsevier North-Holland, New York.
15. Hutcheson McDonald, (1997), "Understanding attitudes and predicting social behavior", *Personnel Psychology*, 48, pp.747-773.

16. Harries-Jenkins, G. (1996), *The Western Military Establishment: A reassessment*, London: European Research Office of US Army.
17. Kenney and Reid (1994), "The systems approach to planned training People Management", *Personnel Management*, 3(5), pp. 34-35.
18. Martin, S.L. and Raju, N.S.(1986), "An estimation of recruiting cost", *International Journal of Management*, 7, pp. 15-23.
19. Milkovich, G.T.,(1972) "The use of Delphi procedures in manpower forecasting", *Management Science* 19, pp. 381-388.
20. Moskos, Charles C. (1988) "Institutional and occupational trends in armed forces", *The Military: More than just a job?* Washington: Pergamon-Brassey.
21. Nakache, P.,(1987) Recruiting edge, *Fortune*, 136(6), 275-276.
22. .Nkomo, S.N. (1986) "Theory and Practice of HRP: The gap remains", *Personnel*, 31 (8), pp. 4-84.
23. Quick, J.C. (1979), "Goal setting and role stress: A field study" *Academy of Management Journal*, 22, pp. 241-252.
24. Reay, D.G. (1994), "Understanding how people learn", *Harvard Business Review*, May-June, pp. 79-91.
25. .Roberts G. (1997), *Recr. and Selection: A competency Approach*, Wiley, Chichester.
26. Rodger, A (1995), "The Seven Point Plan", *Personnel Management*, 27(5) pp. 40-45.
27. Saxena, K.M.L. (1998) "Equation of Service trades with Civil Trades", *Newsletter*, Directorate General of Recruitment, GOI.
28. .Schwab, D.P. (1982), Recruiting and Organizational Participation, *Personnel Management*, 35, pp. 103-128.
29. .Schwab, D.P., Rynes and S.L. (1987). Theories and research on job search and choice (Vol.5, pp. 129-166), Jai Press.
30. .Segal David R. (1988), "Organizational Design for the future armies", *Arlington: U.S. Army Research Institute for Behavioral and Social Sciences*. Special Report 20.

31. Singhvi, N. K. (1996), "Local conflicts and global concerns: Emerging dimensions of military sociology", in *Military Sociology: Global perspective*, Rawat publications
32. Spector, P.E.(1997), "Job Satisfaction: Applications, Assessment, Causes and consequences", *Journal of Applied Psychology*, 22(3), pp. 963-74.
33. Staw B.M. (1997), "Restructuring: Systems Based Approach", *Journal of Management Studies*, May 1986, pp.111-130.
34. Smith J.(1989), "Stress Management and Human Decision Process" *Human resource Management Journal*, Vol. 89, Issue pp 1005-1216.
35. Tyson, S. (1987), "The management of the personnel function", *Journal of Management Studies*, September, pp. 523-32.
36. Wood, R. and Pyne, T. (1998), "Competency based Recruitment and Selection", *Personnel Management*, September pp.30-33.
37. Wright, P.M. and Snell, S.A. (1989); "Towards an integrative view of strategic human resource mgt", *Human Resource Management Review*, 1(3), pp.203-25
38. Zedeck, S. (1997), "What's new in motivation?", *Personnel Management*, May, pp 30-33.
39. Zanakis, S.H. (1980), "A Marker application to manpower supply planning", *Journal of Operational Research Society*, 31, 2, pp. 1095-1102.

APPENDIX-A

Questionnaire

SOCIAL MILIEU OF THE RESPONDENTS

1. NAME		
2. RANK	Cfn / NK / HAV / Nb SUB / SUB / SUB MAJ	
3. AGE GROUP	Below 25 / 25-30 / 30-35 / 35-40 / 40-45 / Over 45 years.	
4. PRESENTLY SERVING IN	Peace / Field / Counter Insurgency Areas	
5. EDUCATION QUALIFICATION	High school / Hr Sec / Graduation / Diploma	
6. MARITAL STATUS	Single / Married	
7. TYPE OF FAMILY	Nuclear / Joint Family	
8. BACKGROUND	Urban / Rural area	
9. PLACE WHERE YOUR FAMILY IS PRESENTLY STAYING	Your parents / Wife's parents / With you / Alone / Any other place (please specify)	
10. SOURCES OF INCOME, OTHER THAN SALARY, IF ANY	YES	NO
11. PERCEPTION ABOUT OWN SOCIAL STATUS:	Lower / Middle / Upper Class	

DESIRABLE ATTRIBUTES RELATED TO ARMY LIFE

Listed below are some attributes related to army life . How important were they to you when you joined the army? Please rate them on a scale from 1 to 5 where the scale indicates the following: 1- Very Important, 2- Important, 3- Partially Important, 4- Not so Important, 5- Not at all important.

ATTRIBUTES

RANKING

1. IMAGE OF ARMY

1	2	3	4	5
---	---	---	---	---

2. BETTER PROMOTIONNAL AVENUES

1	2	3	4	5
---	---	---	---	---

3. SERVICE TO THE NATION

1	2	3	4	5
---	---	---	---	---

4. SALARY & OTHER BENEFITS

5. DISCIPLINE IN ARMY

1	2	3	4	5
---	---	---	---	---

6. OBLIGATIONS TOWARDS FAMILY

1	2	3	4	5
---	---	---	---	---

7. FULFILLMENT IN JOB

1	2	3	4	5
---	---	---	---	---

8. HIGH MORAL STANDARDS

1	2	3	4	5
---	---	---	---	---

9. INVOLVEMENT IN DECISION MAKING

1	2	3	4	5
---	---	---	---	---

10. WORKING CONDITIONS

1	2	3	4	5
---	---	---	---	---

11. QUALITY OF LIFE

1	2	3	4	5
---	---	---	---	---

12. JOB SECURITY

1	2	3	4	5
---	---	---	---	---

Army person often compare themselves to their counterparts in the civil establishments. Some factors of comparison are listed below. Please indicate to what extent do you agree to these statements. Rank them on a scale of 1 to 5, where the ranking signify the following: 1- Strongly agree, 2- Agree, 3- Partially Agree, 4- Disagree, 5- Totally Disagree.

FACTORS

RANKING

1. A combatant is better paid than his civilian counter part.

1	2	3	4	5
---	---	---	---	---

2. A combatant enjoys better perks and priviledges.

1	2	3	4	5
---	---	---	---	---

3. Out of the two persons- one joining army and the other joining a civil organisation at the same level, who do you think would be in a better position 10 years later.

1	2	3	4	5
---	---	---	---	---

4. A combatant enjoys better job security than a civilian.

1	2	3	4	5
---	---	---	---	---

5. Army as an organisation looks after the interests of your family much better, than a civil organisation would do for its employees.

1	2	3	4	5
---	---	---	---	---

6. An army man lives a more meaningful life than a civilian.

1	2	3	4	5
---	---	---	---	---

7. There is more pride associated with an army job than a civil job.

1	2	3	4	5
---	---	---	---	---

8. There is a better social status & prestige associated with an army job in comparison to a civil job.

1	2	3	4	5
---	---	---	---	---

9. Risks are better compensated in army

1	2	3	4	5
---	---	---	---	---

10. A soldier would be wellsettled/ better off than a civilian after retirement

1	2	3	4	5
---	---	---	---	---

11. Opportunities for growth are better in army than in a civil organisation.

1	2	3	4	5
---	---	---	---	---

JOB RELATED STRESS

Listed below are some factors, that contribute to stress ,related to your job in the army.Please indicate on a scale from 1 to 5 ,as to what extent do these factors contribute to stress, where **1 indicates the most important & 5 the least important contributor towards stress.**

CAUSES OF STRESS

RANKING

1. Postings to field /counter insurgency areas.

1	2	3	4	5
---	---	---	---	---

2. Concern for the family when posted to field / counter insurgency operations

1	2	3	4	5
---	---	---	---	---

3. Prolonged deployment in counter insurgency operations

1	2	3	4	5
---	---	---	---	---

4. Social isolation

1	2	3	4	5
---	---	---	---	---

5.Fear and anxiety of injury , death , uncertainty of mission or mission failure.

1	2	3	4	5
---	---	---	---	---

7. 'Zero Defect' syndrome(i.e. your work should be completely error free.)

1	2	3	4	5
---	---	---	---	---

8. Stress due to imbalance between satisfying the needs of ones job & the interest of your family.

1	2	3	4	5
---	---	---	---	---

9. Overloading of work

1	2	3	4	5
---	---	---	---	---

10. Lack of proper facilities,tools, other resources needed to do your job.

1	2	3	4	5
---	---	---	---	---

11. Not being able to get leave when you want it the most

1	2	3	4	5
---	---	---	---	---

12. Lack of proper training on equipment you are asked to work upon.

1	2	3	4	5
---	---	---	---	---

13. Is there any other major contributor to stress ?

YES

NO

If YES ,please specify, what is it ?

Listed below are some factors that might have motivated you, to continue serving in the army till your superannuation. Rank these factors on a scale from 1 to 7, where **1 signifies the most important reason** and **7 the least important reason**. Ranking once assigned

FACTORS

RANKING

1. JOB SECURITY	<input type="text"/>
2. SALARY & OTHER BENEFITS	<input type="text"/>
3. PROMOTIONS AND CAREER PROSPECTS.	<input type="text"/>
4. QUALITY OF ARMY LIFE.	<input type="text"/>
5. YOU THINK YOU ARE NOT CAPABLE TO FIND A SUITABLE JOB ELSEWHERE, IF YOU DECIDED TO PROCEED ON PREMATURE RETIREMENT.	<input type="text"/>
6. INTEREST OF YOUR FAMILIES ARE WELL LOOKED AFTER.	<input type="text"/>
7. PRIDE ASSOCIATED WITH CAREER IN ARMY.	<input type="text"/>
8. ANY OTHER REASONS (with ranking)	<input type="text"/>

QUESTIONNAIRE FOR OFFICERS

listed below are some attributes that compare a jawan joining the army today, to his counterpart who joined ten years ago..Please indicate to what extent do you agree to these comparisons on a scale from 1 to 5. The scale indicates the following : 1- Totally Agree, 2- Agree, 3- Partially Agree, 4- Disagree, 5- Totally Disagree

FACTORS

RANKING

1. The quality of intake of a jawan joining the army is better today than what it was 10 years ago.

1	2	3	4	5
---	---	---	---	---

2. A jawan today is better off financially than what he was ten years ago.

1	2	3	4	5
---	---	---	---	---

3. Promotion opportunities are better for jawans joining army today, than what they were ten years back.

1	2	3	4	5
---	---	---	---	---

4. Number of jawans opting for premature retirement today is on the increase.

1	2	3	4	5
---	---	---	---	---

5. A jawan joining army today is better trained to undertake the challenge of maintaining the high tech equipment, being inducted in the army, than he was 10 years ago..

1	2	3	4	5
---	---	---	---	---

6. A jawan joining today gives more importance to materialistic things than to moral values

1	2	3	4	5
---	---	---	---	---

7. Post tasking of a soldier after he completes his training and joins his unit, is taking him away from his actual trade work that he is supposed to do.

1	2	3	4	5
---	---	---	---	---

JOB SATISFACTION

Listed below are some factors related to your level of satisfaction with your job. Please indicate your present & desired level of satisfaction with respect to each of the following factors, on a scale from 1 to 5, where the scale indicates the following:-

1-Totally satisfied, 2- Satisfied, 3- Partially Satisfied, 4- Dissatisfied, 5- Totally dissatisfied.

S. NO	FACTORS	PRESENT LEVEL					DESIRED LEVEL				
		1	2	3	4	5	1	2	3	4	5
1.	Salary										
2.	Other benefits & privileges										
3.	Working conditions in Army from point of view of:										
	a. Postings										
	b. Safety										
	c. Health										
4.	Opportunities to fulfill social obligations towards family in the form of :										
	a. Education of children										
	b. Attending to family problems										
	(c) Settlement after retirement										
5.	Compensation for family dislocation when posted to field units.										
6.	Job security										
7.	Support & guidance from seniors										
8.	Opportunities for self development										
9.	Standard of training imparted at the training centers:										
	a. Military Training										
	b. Trade training										
10.	Training infrastructure.										
11.	Preparedness of the Corps to meet the challenge of maintaining high tech equipment introduced in Army.										
12.	Fairness of the system , with respect to :										
	a. Promotions										
	b. Postings										
	c. Performance Appraisal										

QUESTIONNAIRE FOR JCOs & NCOs

- Q1. When you joined the army you must have had certain image / perception about army. Have you found army, as an organization, as perceived by you or do you find it to be different in reality?

YES.....

NO.....

Q. What is the reality?

- Q2. What do you think you would be able to achieve in life if you continue serving in the army?

- Q3. What are the things in life, which you think; you will not be able to do because of your having joined the army?

- Q4. What in your experience is the best aspect related to the career of a soldier?

- Q5. What as per you is the worst aspect related to your career? Why do you think so?

- Q6. Are you satisfied with the way army looks after the interests of a jawan's family when he is posted to a field / counter insurgency area?

SATISFIED / NOT SATISFIED

Q. Why / why not?

- Q7. What more can be done to look after the interests of a jawan so that they are more satisfied with their career?

Q8. What are the factors where you feel that your civilian counterpart is better off than you?

Q9. When did you feel most satisfied with your job?

Q10. When did you feel most depressed in relation to your job?

Q11. Would you recommend your relatives/ others to pursue a career in the army? If YES please state why. If NO please specify why not.

Q12. Are you satisfied with the tech training being imparted to you?

SATISFIED / NOT SATISFIED

Q13. What all is lacking in the present system of imparting tech training?

Q14. What as per you needs to be done to improve the standard of training?

Q15. What as per you are three most important reason for jawans opting for premature retirement?

1.

2.

3.

APPENDIX- B

AUTHORISED MANPOWER TO THE CORPS

S No.	TRADE CATEGORIES	Sub Maj	Sub	Nb Sub	Hav	Nk	Cfn	Total
1	Tech (All trades)	262	2251	2565	2724	0	0	7802
2	Avn ftr(air frame)	5	38	37	115	96	252	543
3	Avn ftr(Aero engine)	3	33	32	97	81	213	459
4	Avn ftr(Electrical)	2	23	22	69	59	152	327
5	Avn ftr(Avionics)	2	19	18	46	34	90	209
6	Avn ftr(Inst & photo)	2	18	18	61	56	144	299
7	Armr	18	139	148	2076	1016	481	3878
8	EE Mech	2	11	11	504	665	1605	2797
9	Elect(AFV)	0	3	4	180	236	561	984
10	Elect(MV)	1	15	15	788	1039	2601	4459
11	VM(AFV)	3	23	24	924	1220	2626	4820
12	VM(MV)	12	96	99	3394	4478	10464	18543
13	Inst Mech	2	15	15	235	310	643	1220
14	TCM(GCE)	1	5	6	172	227	529	940
15	TCM(Line)	2	11	11	201	266	620	1110
16	TCM(Radar)	2	14	15	255	337	787	1410
17	TCM (RO)	4	33	33	660	870	2017	3617
18	Ftr(AFV/AD)	2	10	11	247	326	688	1283
19	Ftr(FD)	3	15	16	376	496	1072	1977
20	Clk(GD)	46	413	412	2484	828	697	4880
21	SK Tech	23	210	209	1262	421	299	2424
22	Dvr(Spl Veh)	0	0	0	12	23	56	91
23	Dvr(MT)	34	272	288	1497	2869	6274	11234
24	Rec Mech	20	158	164	1651	1981	1395	5349
25	Dft man	0	5	4	29	39	68	145
26	Limb Maker(H)	0	3	4	4	6	9	26
27	Limb Maker (L)	0	1	2	3	4	6	16
28	Tool Maker	0	0	0	0	0	0	0
29	Welder	6	47	49	301	408	820	1631
30	Machinist	5	32	34	205	277	509	1062
31	Refrig Mech	1	5	5	30	41	70	152
32	Pattern Maker	0	0	0	0	0	0	0
33	Metal Smith	5	4	35	217	293	562	1126
34	Cpr & Jnr	2	16	17	103	139	256	533
35	Moulder	0	0	0	1	0	1	2
36	Ptr & Decorator	2	16	17	100	136	249	520
37	TR	0	0	0	0	0	0	0
38	Upholster	2	15	16	94	127	232	486
39	Eqpt Repairer	0	3	5	26	35	0	69
40	Tailor (Unit)	0	2	2	12	16	4	36

41	Musician	0	0	4	9	20	38	71
42	Cook (Spl)	0	0	0	12	12	75	79
43	Cook(U)	0	0	0	176	176	1073	1405
44	Barber	0	0	0	79	79	405	563
45	Cook (Mess)	0	0	0	13	13	87	113
46	Masalchi	0	0	0	12	12	75	99
47	Safaiwala	0	0	0	104	104	658	860
48	Mess Waiter	0	0	0	19	19	118	156
49	Washerman	0	0	0	80	80	506	666
50	Religious Teacher	0	0	136	0	0	0	136
	TOTAL	474	4004	4503	21659	19970	40087	90607

**ACTUAL HOLDING OF MANPOWER AS IN
JUNE 2001**

S No.	TRADE CATEGORIES	Sub Maj	Sub	Nb Sub	Hav	Nk	Cfn	Total
1	Tech (All trades)	262	2251	2565	2724	0	0	7802
2	Avn ftr(air frame)	4	29	23	62	69	210	397
3	Avn ftr(Aero engine)	6	22	20	58	68	198	372
4	Avn ftr(Electrical)	1	32	11	44	53	133	274
5	Avn ftr(Avionics)	0	20	9	39	47	106	221
6	Avn ftr(Inst & photo)	2	20	10	59	49	88	228
7	Arm'r	18	139	145	2005	926	1287	4520
8	EE Mech	17	3	3	471	588	1658	2740
9	Elect(AFV)	0	6	1	169	222	606	1004
10	Elect(MV)	0	27	4	747	925	3086	4789
11	VM(AFV)	0	41	9	865	1108	3361	5384
12	VM(MV)	6	43	147	3179	3930	13547	20852
13	Inst Mech	0	21	11	224	299	1498	2053
14	TCM(GCE)	0	6	6	153	211	627	1003
15	TCM(Line)	2	12	9	194	255	401	873
16	TCM(Radar)	3	17	10	244	315	791	1380
17	TCM (RO)	0	46	20	614	817	2435	3632
18	Ftr(AFV/AD)	2	7	10	226	303	1492	2040
19	Ftr(FD)	0	17	13	320	417	1278	2045
20	Clk(GD)	44	406	396	2339	717	927	4829
21	SK Tech	23	207	204	1216	365	374	2389
22	Dvr(Spl Veh)	0	0	0	0	2	110	112
23	Dvr(MT)	34	266	279	132	2430	8234	11375
24	Rec Mech	20	153	159	1476	1829	2666	6303
25	Dft man	1	6	3	27	36	87	160
26	Limb Maker(H)	0	5	0	5	0	11	21
27	Limb Maker (L)	0	5	0	5	0	4	14
28	Tool Maker	0	0	0	4	0	11	15
29	Welder	0	29	73	277	375	1147	1901
30	Machinist	1	27	41	189	260	711	1229
31	Refrig Mech	0	3	8	28	39	126	204
32	Pattern Maker	0	0	0	0	0	10	10
33	Metal Smith	1	33	39	209	272	845	1399
34	Cpr & Jnr	1	22	13	88	136	339	599
35	Moulder	0	1	1	3	4	66	75
36	Ptr & Decorator	2	16	16	95	113	331	573
37	TR	12	4	8	65	97	260	446
38	Upholster	1	27	5	84	114	378	609
39	Eqpt Repairer	3	6	0	40	59	219	327
40	Tailor (Unit)	1	4	6	20	23	78	132

41	Musician	1	0	1	9	28	34	73
42	Cook (Spl)	0	0	0	14	3	77	94
43	Cook(U)	0	0	0	153	151	1135	1439
44	Barber	0	0	0	70	71	470	611
45	Cook (Mess)	0	0	0	13	22	68	103
46	Masalchi	0	0	0	7	11	72	90
47	Safaiwala	0	0	0	89	86	642	817
48	Mess Waiter	0	0	2	22	17	85	124
49	Washerman	0	0	0	71	67	550	688
50	Religious Teacher	8	55	67	0	0	0	130
	TOTAL	483	4008	4031	18999	17929	47543	92993

APPENDIX-C

Trades in the Corps of EME

Supervisor Trades

1. Tech (Electrician)
2. Tech (Gun)
3. Tech (Instruments)
4. Tech (Repair)
5. Tech (A Vehicles)
6. Tech (B Vehicles)
7. Tech (C Vehicles)
8. Tech (Gun control Equipment)
9. Tech(Radio)
10. Tech (Line)
11. Tech (Computers)
12. Tech (Armourer)

Repair Trades

1. Vehicle Mechanic (Military Vehicles)
2. Vehicle Mechanic (Armored Fighting Vehicles)
3. Telecommunication Mechanic (Radio)
4. Telecommunication Mechanic (Line)
5. Telecommunication Mechanic (Gun Control Equipment)
6. Refrigeration Mechanic
7. Instrument Mechanic
8. Gun Fitter (Artillery guns)

9. Gun Fitter (Armored Fighting Vehicle/Air Defense Guns)
10. Electrician (Military Vehicles)
11. Electrician (Armored Fighting Vehicles)
12. Engineer Equipment Mechanic
13. Armourer (Small Arms)
14. Aviation Fitter (Air Frame)
15. Aviation Fitter (Aero engine)
16. Aviation Fitter (Electrical)
17. Aviation Fitter (Avionics)
18. Aviation Fitter (Instruments & Photo)
19. Turner
20. Recovery Mechanic
21. Driver Specialist vehicles

Ancillary Trades

1. Upholster
2. Welder
3. Metal Smith
4. Painter & Decorator
5. Carpenter & Joiner
6. Pattern Maker
7. Limb Maker (H)
8. Tire & tube repairer
9. Molder
10. Machinist
11. Tool Maker

12. Limb Maker (L)

Administrative Trades

1. Driver (Military Transport)
2. Draughtsman
3. Clerk
4. Washer man
5. Tailor
6. Safaiwala
7. Mess Waiter
8. Masalchi
9. Equipment Repairer
10. Cook (Unit)
11. Cook (Special)
12. Cook (Mess)
13. Barber
14. Musician
15. Religious Teacher
16. Store Keeper Technician

APPENDIX- D

Table 6.2: TOTAL AND AVERAGE YEARLY RANK WISE WASTAGES

	LMC		DEATHS		DESERTIONS		DISCIPLINE		COMPASSIONATE		SUPERANNUATION	
RANK	Total*	Avg yrly	Total*	Avg yrly	Total*	Avg yrly	Total*	Avg yrly	Total*	Avg yrly	Total*	Avg yrly
CFN	54	5	636	53	568	47	963	80	118	10	4,593	382
NK	2095	174	224	19	65	5	167	14	346	29	8,708	1,472
HAV	1309	109	236	20	22	2	163	13	283	24	18,432	1,536
NB												
SUB	157	13	50	4	0	0	2	0	41	4	17,661	726
SUB	129	11	75	6	10	1	4	0	27	2	7,142	525
SUB												
MAJ	10	1	10	1	0	0	0	0	5	0	1,237	103
TOTAL	3,754	313	1,231	103	665	58	1,299	107	820	69	57,773	4,744

Denotes the rank wise total wastages from the training year 1989-90 to 2000-01